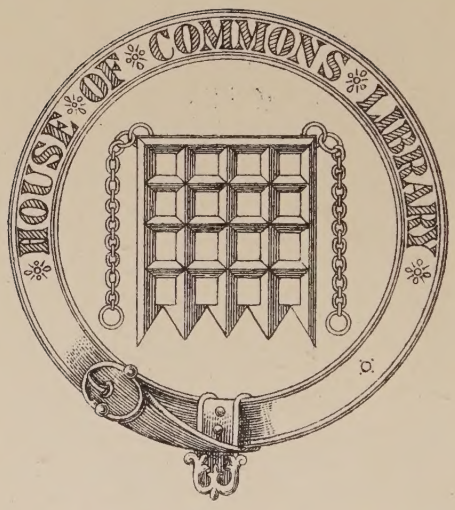
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International Wage Comparisons

DOCUMENTS ARISING OUT OF CONFERENCES, HELD AT THE INTERNATIONAL LABOUR OFFICE IN JAN. 1929, AND MAY 1930, CONVENED BY THE SOCIAL SCIENCE RESEARCH COUNCIL OF NEW YORK

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INTERNATIONAL WAGE COMPARISONS

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PREFACE

THE documents which have been brought together in this volume have been prepared over a period of nearly three years since the Social Science Research Council of New York convened its first Conference on International Wage Comparisons at Geneva in January, 1929. During that time, as was natural in this expanding field of statistics, the volume of information available, and the methods of its preparation for publication, have been modified in many ways. We have found ourselves, in consequence, in the dilemma which at the present must face all workers in this branch of statistics : that descriptions of the existing material are out-of-date in details almost before they are in print. We thought it best, therefore, to present these various documents largely as they were prepared at intervals since 1929. To bring them all up-to-date would have involved further delays with the continuing danger of falling behind new changes. Moreover, in the study of methods, there is much significance in the successive stages which have led up to the adoption of existing practices. The documents should, therefore, be consulted partly as an attempt to survey minutely the wages and cost of living material in existence in the six countries : Canada, France, Germany, Italy, the United States, and the United Kingdom ; and partly as a record of changes which have gone on in this relatively short period. In the final section, indeed, the latest available information at the time of going to press has been utilized. But even here there will be found references to imminent modifications in the scope and nature of important indices.

The gradual evolution of statistical methods and material is perhaps most clearly seen in the series of memoranda prepared by the International Labour Office ; for some of the changes adopted by the Office since 1929 have been the outcome of suggestions made and resolutions prepared by the two Conferences which have been held. In this case there was special reason for the presentation of successive reports recording modifications in the information available and the system of manipulating it for purposes of international comparison, since these reports show what great obstacles present themselves in the task of bringing the statistics of different countries into line. And yet, if there is one continuous thread running through this volume, it is that the endless diversity

of national statistics will never be reduced to the order and uniformity necessary for international wage comparisons except through an international agency, and that, however important may be the need for each country to strengthen its own statistics, the task of co-ordinating developments of this kind along the lines which will ultimately yield the greatest degree of comparability is still more urgent.

At the first conference Mr. J. W. Nixon of the International Labour Office and Professor Henry Clay of the University of Manchester were entrusted with the task of editing the proceedings of the conference for presentation to a second conference. At the second conference it was decided to commission some one economist to supplement the descriptive account of the statistical sources available in each country, which had been presented to the first conference, by a collection and review of the chief indices derived from these sources. To Mr. John Jewkes of the University of Manchester, who undertook this task, the chief credit for this volume is due, and to him, and also to Mr. Nixon and Professor Clay, the Social Science Research Council wish to express their obligation.

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INTRODUCTION

By Henry Clay

I. ORIGIN AND SCOPE OF THE FIRST CONFERENCE.

THE reports that are published in the following pages had their origin in an international conference convened by the Social Science Research Council of the United States of America at Geneva in January, 1929. A growing interest in international wage comparisons and the difficulties involved in comparing both money and real wages in the various countries led the Council to make a grant for the purpose of exploring this field. While taking the initiative and making possible the conference, the Council realised that any effective study would require the co-operation of statisticians in the chief industrial countries. The invitation was, therefore, addressed to representative economists in these countries to form committees of statisticians, economists and others interested which should prepare reports on the existing statistics of wages in their respective countries for presentation to a conference.

Since the conference was directed in the first place only to a preliminary exploration of the subject it was confined to six leading industrial countries—United States, Canada, France, Germany, Great Britain and Italy. In addition the International Labour Office, the experience and publications of which form the necessary basis of any further work in the field of international wage comparisons, was invited to take part, and put at the disposal of the conference a meeting place in Geneva and the facilities of translation and clerical work of its office. National committees were set up only in the United States, Great Britain and France. Reports were prepared on the wage statistics of Canada by the Dominion Statistician, Mr. R. H. Coates; of Germany, by the President of the Statistical Office, Dr. Wagemann and certain of his colleagues; and of Italy by the President of the Central Statistical Institute, Professor Gini; and the conference itself enjoyed the assistance of Dr. Wagemann, Professor Gini and certain of their colleagues.

Wage statistics have been the subject of discussion in international conference before. In the memorandum submitted to the first conference by the International Labour Office and printed below[1] reference is made to the subject of international wage comparisons

[1] See p. 114.

by the First and Second Conference of Labour Statisticians. At the first of these the need and possibility of making wage statistics more comparable was discussed, and certain resolutions adopted for the guidance of the different national authorities; these are printed below. As a result also of this conference, the International Labour Office took over from the Labour Statistics Division of the British Ministry of Labour the compilation and publication of certain comparative statistics which it had started in 1923. These have since appeared on a developed and improved basis and appear regularly in the *International Labour Review*. The present conference differed from these earlier conferences in two respects; it was entirely unofficial—those officials of national statistical bureaus who attended did so in the personal capacity of statistical experts and not in any representative or official character; and it aimed at bringing into conference the users as well as the compilors of wage statistics.

II. WORK OF THE FIRST CONFERENCE.

In view of the informal character of the Conference, no minutes of the proceedings were taken, and it is only possible to give a short outline of the discussions which led to the adoption of resolutions.

The Conference was presided over by Mr. Henry Dennison, Chairman of the Committee on Industrial Relations of the Social Science Research Council, who, in welcoming the delegates, outlined the objects of the Conference and invited the chairman or chief representative of each delegation to summarise the report he had submitted on the wage statistics of his own country. A representative of the International Labour Office followed with an account of the work of the Office and of the difficulties it had experienced in making international wage comparisons. The opening meeting showed at once the great diversity, not only in the national wage statistics, but also in the way the national reports had been drawn up. This was only to be expected, in view of the fact that no plan for the drawing up of the reports on uniform lines had been made; but it rendered their comparison somewhat difficult. The discussion, however, brought out two of the most important uses of wage statistics, on which it was decided to concentrate future discussion, namely, the methods of measuring changes in wages over a period of time in a given country, and the international comparison of wages at the

same period between different countries; and Committees were accordingly set up to deal with each of these subjects. A General Committee consisting of the President of the Conference, the principal delegate from each of the four European countries, and a representative of the International Labour Office, which was at the same time an editorial committee, a selection committee, and an organisation committee, was also set up. As the Conference only met again once for a short time for the purpose of adopting the reports of the three Committees, the further account of the work of the Conference is limited to that of the Committees.

Work of the Committee on Wage Index Numbers. This Committee met under the chairmanship of Professor Gini, President of the Central Institute of Statistics, Rome, and confined itself to laying down general principles for the guidance of the experts in the different countries in the preparation of index numbers of wages. It distinguished six different purposes for which such index numbers may be compiled, and prepared an elaborate and comprehensive series of resolutions on the methods to be adopted. It prefaced these resolutions with a general preamble which admirably sums up the point of view and work of the Committee.

This preamble and the text of the resolutions themselves are given below.[1] These resolutions are definitely "ideal" resolutions, i.e., they show the best methods to be adopted, granted that all the necessary data are available, and it is doubtful if many countries will be able to apply them at present. No such detailed series of resolutions on statistical methods for compiling wage index numbers, however, existed before; and the Committee and the Conference as a whole are indebted to the Chairman, Professor Gini, to whose authority and competence this satisfactory result is due.

Work of the Committee on International Wage Comparisons. This Committee met under the chairmanship of M. Dubreuil (France) and entered upon the task in a somewhat different spirit from that of the last Committee. It conceived its primary task to be that of seeing how far the data for making the international wage comparisons could be improved, and as the only regular comparisons of such a nature are those made by the International Labour Office, it naturally

[1] See p. 19.

took these figures as a basis for its discussion. The scope of the figures used by the Office is explained and discussed in the memoranda by the I.L.O. printed below[1]. They are based primarily on rates of wages and on retail prices of food—the latter being used for the calculation of " real " wages. This Committee, however, confined itself entirely to the money wage aspect, and did not touch on the question of real wages, i.e., the purchasing power of wages ; but was of the opinion that the latter aspect should be discussed at a subsequent Conference.

Before adopting any resolutions on the subject, however, the Committee considered certain general questions arising out of the nature of wage data. It insisted on the distinction between " rates " of payment for a certain unit of time, and " earnings " or the amount actually received by a worker at the end of the pay period. This distinction, though elementary, is fundamental, and yet is often neglected in current wage statistics. The Committee realised the advantages and drawbacks of each of these types of data, but considered that greater comparability might be achieved if each country developed the kind of data in which its present statistics are weakest, and in order to show to what extent the existing statistics are comparable, it suggested that the International Labour Office might publish an annual statement showing for each of the principal industries, the type of data at present available in the chief countries. This statement would show at a glance the differences in the scope of the data for different countries, and, by inference, the countries for which neither form is available. This, it was thought, would encourage the various countries to supplement their statistics, and in course of time the annual statement would gradually improve until more adequate comparisons would be possible.

The limitations in the wage statistics at present collected by the International Labour Office for the purpose of international comparisons have long been recognised, and the Committee believed it possible to improve the value of the statistics by adding to the number of occupations and to the number of localities covered, and urged the Office to ask the national authorities to supply the additional information for this purpose. It selected certain further occupations whose inclusion did not appear unsuitable, and

[1]See p. 105.

considered that it might also be possible to include railway workers and commercial and municipal employees.

The text of the resolutions adopted by this Committee is given below[1]. Unlike those of the first Committee, they exclude all questions of methodology and deal solely with certain practical aspects of the collection and comparison of wage data. The problem of "real" wages comparisons was not dealt with by the Committee, but nevertheless its resolutions were welcomed by the representatives of the International Labour Office as a useful encouragement to its work in this sphere.

Work of the General Committee. The primary task of this Committee was to consider the various reports on national wage statistics which had been submitted with a view to their co-ordination. It was realised that though these reports contained information of great value for all persons interested in statistics of wages, their value would be considerably improved if they were drawn up on a uniform plan and were accompanied by a series of tables showing for each industry or occupation the information available concerning (*a*) rates of wages, (*b*) earnings. Each of these tables would show in detail the origin and source of the wage data, their scope (i.e., areas covered and frequency of collection, and classes of workers covered), their nature (whether hourly, daily, etc., whether average or actual rates, etc.), and the hours of labour. A scheme of synoptic tables was drawn up for this purpose, and the authors of the national reports were requested to recast the material contained in these so far as possible in accordance with the scheme of arrangement adopted. The reports, so recast, will be found below[2]. It was not found possible in the cases of France, Great Britain, and Italy to bring the material conveniently into the proposed arrangement; the authors of the reports have, however, had this arrangement before them, and the available material is arranged, it is believed, as conveniently for purposes of reference and comparison as its varied nature permits.

III. WORK OF THE SECOND CONFERENCE.

The Second Conference, held at Geneva in May, 1930, confined itself to accepting the Report of the First Conference and to outlining

[1] See p. 28.
[2] See p. 35.

in more detail the practical steps which might be taken to improve the materials and methods utilized for purposes of international wage comparisons. The resolutions of the two Committees which were formed are given below[1]. The Second Conference also resolved that an effort should be made to bring together a representative group of wage and cost of living statistics in each country with a view to showing what differences existed in their nature and what possibility there was of constructing indices of hourly earnings in each country similar to the index prepared by Dr. Wolman for the United States. It was thought that this survey could best be carried out by one investigator acting in collaboration with representatives in the different countries. Mr. John Jewkes was invited to undertake this work and his report is included in this volume.[2]

IV. DIFFICULTIES OF INTERNATIONAL WAGE COMPARISONS.

As is stated above, the first impression left by the presentation of the national reports was one of diversity. Further consideration brought out the difficulties in the way of making trustworthy comparisons. In the memoranda submitted by the International Labour Office these difficulties are examined systematically in the light of the Office's experience ; by way of introduction and supplement, the chief points that emerged from the reports and discussion may now be summarised.

The difficulties arise from two sources ; inadequacy of the data themselves, and lack of comparability among them.

The term " wage " is itself ambiguous. It may refer either to the rate at which labour of a certain kind is paid, or to the earnings of the worker. To consider rates first ; wages are paid on a variety of systems, of which time rate and straight piece rate are the most important. Time rate is the simplest, but statistics of time rates are not free from uncertainty. It is necessary, if we are to know what a given rate per hour infers, to know also whether it represents the standard rate, the minimum rate, or the actual earnings per hour for the work to which it is related ; and, if it is a standard or minimum rate, to know the proportion of workers doing the work in receipt of it and its relation to the actual data. It is necessary also to know

[1]See page 30.
[2]See page 140.

to what allowances and supplements, and on the other hand deductions, it is subject; in some countries family allowances, in certain occupations payments in kind, in most occupations payments for overtime in excess of normal hours, and in an increasing number of countries payment for holidays, ensure that the time-rate will understate the actual rate of earning. A reduction in normal hours for example, if it is not accompanied by a reduction in actual hours worked, will increase the proportion of working time paid at overtime rates, and so increase the average earnings per hour, although no change in the hourly rate has been made.

Piece rates and other systems of payment by results are more difficult to interpret and compare than time rates. By themselves they throw no light upon earnings, because facilities for output may be greatest where piece rates are lowest. As an indication of comparative labour costs, they are misleading, unless they are paid for a product that is identical and under conditions that are similar in the countries compared. They are subject to supplement and deduction in the same way as time rates. Changes in piece rates are commonly recorded in countries which compile index numbers of wage changes; but for place comparisons, as distinct from time comparisons, it is necessary to have particulars of output, conditions of work, and earnings, which can usually be ascertained only by an *ad hoc* field investigation.

Whether the rates compared are time rates or piece rates, it is desirable to know the extent of their application. In time work occupations in which some piece work is done what rate above ordinary time rate is the piece worker guaranteed? If the rate is a legal minimum rate, what proportion of the workers in the regulated industry are on the minimum, and is it a minimum exceeded in many cases? If it is a trade union rate, do the majority of employers recognise and pay the union rate? The source from which the information is derived may affect the value of the information; the trade union rate may be the only rate reported, although the union covers only a minority of the workers; or the legal minimum may be reported, although the majority of workers are receiving above the minimum. In this connection the question of the locality of reported rates may be important. Capital cities and other large towns may provide the most accessible information without necessarily being

typical of the countries for which their rates are taken as representative. In a country of continental scale, like the United States of America, variations in wage rates for identical work may be very great, and no single town, or even class of localities, is a reliable sample of rates for the country as a whole. The problem is a problem of sampling ; exhaustive information is usually unobtainable ; it is, therefore, essential before any comparisons are drawn, to know the proportion that the sample bears to wage rates as a whole, and the extent to which, and direction in which, it may be biased.

Earnings raise many of the same considerations as rates, and also certain questions peculiar to earnings. As in the case of rates, it is necessary to ascertain whether the earnings quoted are actual earnings or nominal earnings for normal hours ; if the former, what proportion is attributable to overtime or other special payments ? It is desirable that all special payments and allowances and all deductions, should be specified. Average earnings, it should be noted, may change without any changes in rates of wages. For the purpose of the British official statistics, a change in the rate of wages is defined as a change in the rate of remuneration of a certain class of workpeople, apart from any change in the nature of the work performed ; it, therefore, excludes changes in average earnings due to changes in the proportion of higher and lower paid workpeople, changes providing merely for compensation for extra work, changes in the rate of pay of individuals due to promotion or to progressive increments within the limits of unchanged scales, and changes in earnings due to variations in the amount of work done.

These limitations point to the need of taking into account a number of factors affecting earnings before changes in rates can be translated into changes in earnings. Among these the following may be mentioned :

(*a*) In time work employment, changes in rates of pay for overtime, night work and work on holidays ; increased opportunities of overtime earnings due to a reduction in normal hours ; substitution of a normal day for a normal week as the base line from which overtime is reckoned ; bonuses for special tasks and other extra payments. Some of these changes are recorded, but a special enquiry would usually be required to make a complete record in any industry.

(*b*) Extension in a trade, for which only standard time rates are recorded, of payment by results, including not only piece work but individual and collective bonuses on output.

(*c*) Changes in the basis of piece rates ; the recorded changes in coalmining in England before the war understated the true increase in wages mainly because they took into account only the percentage changes to be applied generally to tonnage and other lists in force in individual pits, which lists were themselves subject to frequent modification.

(*d*) Improvements in organisation, equipment and material (or the reverse) affecting earnings on an unchanged piece list.

(*e*) Levelling up of backward districts to the standards of the higher rated districts.

(*f*) Advances to individuals, and generally, payment above or below standard or minimum rates. For example, in the expanding branches of an industry, although the standard time rates are the same as the depressed branches (or differ only with the customary district variations), the workpeople may be given a share in the industry's prosperity by being paid above standard. In times of depression short time will reduce effective rates.

(*g*) The shift of labour from lower paid to higher paid industries or occupations ; or the reverse movement. This, and the following factor can sometimes be broadly allowed for, where the shift is slow and continuous, by tracing changes in the distribution and composition of the occupied population in successive occupational Censuses.

(*h*) Change in the proportion of different categories of labour—male and female—skilled and unskilled, adult and juvenile.

(*i*) Subsidiary earnings and allowances in kind, such as holidays with pay ; family allowances, employers' contributions to social insurance, etc.

This factor last mentioned acquires a particular importance if the object of the international comparison is the comparison of standards of life in two countries. Not only do the opportunity of subsidiary earnings for any individual vary widely with the differing economic organisation of different countries, but, much more important, subsidiary earnings by members of the family, other than the head, have very different degrees of importance. The family

is the social unit for purposes of consumption; the standard of life, therefore, depends on the income of the family as a whole, not on the rate of payment of any individual.

We may turn now from difficulties connected with the data themselves to comparisons between the data of different countries. The root of the difficulties that face us here is that wage statistics in every country are related to the needs and requirements of the country itself, and not compiled for the purpose of facilitating comparisons with other countries. They may, therefore, be admirably suited for the purpose for which they are intended, and yet provide no adequate basis for international comparisons. The only data that are available are seldom the data we should choose. One country collects statistics of rates, another of earnings; one classifies workers under their occupational descriptions, another in broad categories of skilled, semi-skilled, and unskilled; one takes a regular census of all earnings, another confines itself to a selected list of well-organised trades; one collects its returns from large urban areas, another gives great weight to agriculture in its statistics. Even when the data collected are not dissimilar, the frequency—and consequently the dates to which the latest available figures refer—may differ materially. The kind of difficulty involved in any international comparison is well brought out in the table of material available for comparisons in the textile industries given in the memorandum of the International Labour Office printed below.[1]

Specific investigations into comparative rates of wages in other countries have at various times and by various countries been made; but in the main national wage statistics are directed to the purpose of measuring changes from time to time in the country that compiles them, rather than differences between different countries. Now data that are adequate for measuring change from time to time will not necessarily serve for the other purpose of international comparisons. If all important changes in rates are reported to the statistical authority, it is reasonable to infer that an index based on them will adequately represent the time and direction of wage movements in the country. For international comparisons, on the other hand, it is necessary to know, not only the change in the rate, but the rate itself, and not only rates but actual earnings; this is

[1] See p. 111.

more particularly necessary in the case of piece rate work, where a comparison of bare rates might throw little or no light on comparative earnings. The yield in hourly earnings of any prevailing system of piece rates would, therefore, be the proper basis of any international comparison. Again it is reasonable where the majority of workers are covered by trade union organisation, to assume that the movement of wages outside the trade union field will follow generally changes in union rates; but a bare comparison between rates in different countries may be invalidated by the differences in the proportion that unionised trades bear to unorganised labour. A comprehensive and regular census of earnings as well as of rates in all the countries compared, would be required to give the data on which international comparisons can be based with complete confidence, and such censuses are the exception.

Even if the national data, however, are in each case comprehensive and reliable, there are difficulties in comparing them. The comparison will be invalid unless like is compared with like; but an identical description may connote slightly differing kinds of work in different countries. The organisation of the same industry is never the same in two countries, so that the classification of workers cannot be precisely the same; and it may differ so much that the classes of workers employed are not at all comparable. To ensure exact comparability, therefore, it would be necessary to restrict comparisons to those crafts and occupations that are carried on on uniform lines in all the countries compared.

This restriction gives rise to another difficulty. The occupations to which we are thus restricted may be representative of wages as a whole in one country, but quite untypical of another; or they may be unrepresentative of both. Thus in one case the list may include a disproportionately large sample of skilled rates, while in the case of the other country it is unskilled labour that is adequately represented; or the rates chosen might in the one country all fall between the upper and lower quartiles of all rates in that country, but in the other most of them fall above the upper quartile. We are thus faced with a dilemma; if we restrict our comparison to a list of occupations that are strictly comparable, the wages taken may be fairly representative of one country but not of another, and may be unrepresentative of both; on the other hand, if we take for our

sample the occupations that are most representative in each country, the result will be a different list for every country, and the wages we shall be comparing will not refer to comparable work.

Similar difficulties arise in the treatment of payments in kind, family earnings and subsidiary occupations. To ignore them is to ignore influences that materially affect the economic welfare of the wage-earning class, and affect it to very different degrees in different countries. The varying importance of agriculture in different countries is a source of special difficulty.

Possibly no perfect solution of the difficulties we have indicated is to be found, and a compromise between the claims of conflicting principles of comparison is the only way out. Data of as many comparable occupations, carried on under similar conditions in all countries, as possible should be used; the information about these should be as definite and explicit as possible, stating whether the wages given are rates or earnings, for standard hours or for actual hours worked, inclusive of supplementary payments or exclusive, skilled or semi-skilled, in large towns or in the country as a whole, under collective agreement or by individual arrangement, etc. Then this information should be supplemented, if possible, by further information about the occupational distribution of the population of each country, wage rates and earnings in the predominant occupations and grades in each, and other material that would make possible a judgment on the question how far the occupations in the selected list of comparable occupations are representative of labour as a whole in each country.

One further consideration remains to be noticed. We have discussed comparisons of wages, money wages and real wages, upon the basis of the existing data, with the object of ascertaining how far, and with what qualifications, such comparisons were possible; and we have encountered difficulties that arose partly from the inadequacy of the data, partly from the economic differences between countries that made data superficially and nominally of the same character, really incomparable. The problem of comparison is, however, complicated by a further factor, the object in view in making the comparison. It is possible that the data in two countries might be free from ambiguity and strictly comparable, and nevertheless be inadequate to answer the question it is desired to put.

The International Labour Office has extensive experience of the purposes for which industrialists and others seek to make international comparisons of wages. Two main purposes may be distinguished; comparison of the economic conditions of wage earners in different countries, and comparison of the labour cost of production in competing countries. The latter would appear to be the purpose for which information is more commonly sought; the former the purpose for which information available is more adequate.

The difficulty of comparing labour costs arises mainly from the circumstances that labour is only one element in an invariably complex set of productive factors, and that comparability of product is even more difficult to secure than comparability of work. Products described by the same grade designation may differ widely in character or quality. Competition again may be between an industry which relies on the extensive use of capital appliances with a low degree of skill in the labour employed, and another industry bearing the same general designation, which relies more on the skill of the worker and employs less capital per head. Similarly other conditions affecting output may differ so widely that any comparison of labour costs, without consideration of these other differences, would be invalid and misleading.

Statistics of output, which are needed if any comparisons of labour cost are to be drawn, are less comprehensible even than wage statistics. Where they are available—as in the coal and iron and steel industries and some branches of the textile industries of many countries—they cannot be compared directly with statistics of wages. A study must first be made of differences in the product, differences in the equipment and organisation, and differences in other conditions influencing output in the countries under comparison, before any deduction can be drawn as to relative labour costs. It is the experience of the International Labour Office that these conditions can be satisfied only by special field investigations, carried out in co-operation with representatives of the industry, into one industry at a time. The method has been applied by them to the coal mining industry, and is now being applied to the textile industries.

To sum up: international comparison of wages are narrowly limited by the available data. In no country, perhaps, are data

available for a complete account of wages; and, when they are complete in any one country, they would serve as a basis for comparisons only if the other countries, with which comparison was made, had data equally complete. However extensive the data available in the different countries, only those data are of use for comparative purposes which are of identical character and reference in all the countries compared.

While the possibilities of international comparisons of wages are limited, the increase in the volume of available wage statistics in Europe and America and our better understanding of them, point the way to more intensive and more useful international comparisons in the near future. The chief limit is the paucity of comparable material; but were this difficulty overcome, difficult problems would remain arising from the differences between the economic organisations and methods of living of different countries. Comparisons will, however, continue to be made by those who are not conscious of the difficulties, if not by those who recognise them. It will be well, therefore, to conclude this introduction by indicating the conditions that should be observed in making use of the available data.

In the first place, direct comparisons should be restricted to wages in occupations that are carried on by similar methods and under similar conditions in all the countries compared. Care should be taken to ensure that the wages compared are of identical character; rates should be compared with rates and not with earnings, time wages with time wages, etc., and differences in normal hours should be noted. Sufficient information should then be given to form a judgment how far the occupations taken are representative of each country. This will involve some consideration of the occupational distribution of the population in each case, proportion of industry to agriculture, the extent of family and subsidiary earnings, the proportion of skilled to unskilled labour. Similarly any information should be noted which will show how far the wages of the selected occupations are representative of wages generally in each country; are the occupations selected among the higher or lower paid occupations? is time work normal or are piece rates more common? are the areas for which wages are given representative or exceptional? how important are supplementary payments in each case? Finally,

some consideration must be given, on the one hand to differences in the purchasing power of wages, on the other to differences in the efficiency or productivity of labour. For the former the material collected by most governments on the cost of living can be utilised, for the latter, statistics of output are needed, and when available, require careful examination and interpretation, preferably by special studies of the type that the International Labour Office has conducted into the Coal Mining Industry.

RESOLUTIONS AND RECOMMENDATIONS OF THE FIRST AND SECOND CONFERENCES

RESOLUTIONS OF THE FIRST CONFERENCE JAN. 1929

COMMITTEE ON WAGE INDEX NUMBERS

PREAMBLE

THE Committee is fully aware that in the majority of countries the available data are too limited for all the requisite conditions for the compilation of satisfactory index numbers of wages to be fulfilled. However, it considered it desirable in the circumstances to discuss the conditions to be observed in order that index numbers of wages should, as far as possible, be adapted to the purposes for which they may be used. It seemed to the Committee that such an examination was useful not merely from the point of view of statistical theory, but also from the practical point of view, because many countries are at present passing through a period in which wage statistics are being reorganised on fresh bases, and it may be very useful for these countries to have certain guiding principles for the collection and tabulation of their figures. Moreover, even if it appears that the programme outlined is incapable of realisation at the moment, it will, nevertheless, have a certain practical utility because it will make clear the extent of the reservations to be made when interpreting necessarily incomplete series of wage index numbers, whether existing, or to be drawn up in the future.

The Committee unanimously recognised that the compilation of index numbers of wages must proceed along perceptibly different lines as regards both the data to be taken into account, and the methods of collection and tabulation, according to the purpose for which the index numbers are to be used.

It would consequently serve no useful purpose to attempt to establish an index number for wages for all purposes; on the contrary, it is necessary to consider separately the establishment of different indexes corresponding to different purposes. There are three obvious and very distinct purposes for which index numbers of wages may be required:

(1) To determine one of the elements for measuring fluctuations in the standard of living.

(2) To calculate the remuneration per hour of work.

(3) To calculate the labour cost per unit of production.

Within each of these purposes, the object may be to determine the fluctuations in wages in time, or to make comparisons between different districts or different countries. In accordance with the task entrusted to it, the Committee, generally speaking, considered chiefly the first of these points of view, that is to say, the variations in wages in time within a country.

At the same time, international comparisons of the remuneration per hour of work seemed so much more valuable than comparisons in time in a single country, that the Committee felt impelled to examine certain specially difficult points raised by this question.

For each of the purposes mentioned above, a distinction must be made according to whether the index is considered as applying to the working class as

a whole, or as an indication of the variations occurring in different industries or classes of workers, independently of the influence which the relative importance of these industries or classes of workers may have on the general wage averages. For example, if index numbers of wages are considered as one of the factors to be taken into account in estimating the standard of living of the workers, then the aim may be to measure separately the variations in the standard of living of skilled, semi-skilled, or unskilled workers; or the variations occurring among the workers as a whole, which may arise to a considerable extent from the fact that skilled workers may be at present much more numerous than formerly. The Committee, therefore, considered it desirable to keep in mind these two points of view. A similar distinction may be made, and was in fact taken into account by the Committee, in considering the labour cost per unit of production.

In the same way a calculation of the remuneration per hour of labour may be concerned with the remuneration for any hour, or for an hour of the same nature (normal or supplementary work, skilled, semi-skilled, or unskilled work) and of the same efficiency in regard to either individual qualifications or technical equipment. The Committee, in view of the limited time at its disposal, restricted its examination to the latter point of view.

In addition to the three main purposes analysed above, there are two others for which index number of wages have been employed. There is, first, that of measuring the variations in the total amount of wages as a percentage of the national income, and secondly, that of using them as one of the factors in economic forecasting. The Committee was of opinion that this latter purpose was particularly important, and therefore gave it special attention.

It must be understood that when the Committee states that index numbers of wages may be used for measuring the standard of living or the remuneration for an hour of work, or again as a factor in economic forecasting, it does not thereby imply that they represent the only factor to be taken into account for the purpose in view. It is obvious that the index numbers of wages can only be one factor, and that other measurements must also be taken into consideration. In particular, the index number of the cost of living must be considered when estimating the standard of living or the real remuneration for an hour of work, and similarly, the level of prices when the index numbers of wages are to be used in calculating the labour cost per unit of production. In the same order of ideas the Committee unanimously decided (as the second Conference of Labour Statisticians had done) that the data concerning actual earnings should be taken for preference, save in exceptional cases, in examining the question of the standard of living.

The Committee was unanimously of the opinion that in determining the standard of living no attempt should be made to allow for the subjective cost of labour, which it is quite impossible to measure; on the contrary, the term, "standard of living," should retain the connotation which it generally has in economic science, namely, that of material well-being. In order to avoid any misunderstanding the Committee would even have adopted the suggestion of

using the term " purchasing power " instead of " standard of living," if it had not been that it considered it more practical to retain the commoner expression which is more familiar to the majority of workers, rather than employ a technical term whose exact significance is probably fully grasped only by specialists.

The Committee did not claim to deal with all the important points, but was content to consider for each type of index :

(1) The wages data (rate of wages, average wages, or actual earnings) to be taken into account in each case.

(2) The industries or classes of workers to which these data should refer.

(3) The areas from which returns should be collected.

(4) The period during which the data should be gathered.

(5) The method of arriving at the index numbers, that is, the weighting of the various classes or industries, the choice of the base period, etc.

Generally speaking, the Committee wishes to emphasise the importance, whenever a series of index numbers of wages is published, of giving a detailed explanation of the principles adopted with reference to each of the five points enumerated above, and of all the other factors which may be essential for a true interpretation of the index numbers.

Finally, while the Committee, in accordance with the task entrusted to it considered in particular the fluctuations of wages within single countries, it also frequently emphasised the fact that comparisons between different districts and different countries were no less important, and might even be of greater value.

I. CONSTRUCTION OF INDEXES TO MEASURE CHANGES IN THE STANDARD OF LIVING OF THE WORKING CLASS AS A WHOLE.

1. *Choice of Type of Wage Data.* If the standard of living is used in its generally accepted sense of material well-being, it is evident that for the purpose of constructing wage index numbers to measure changes in the standard of living of the working class as a whole, the ideal type of data to be used should be actual annual earnings, or earnings for a shorter period representative of annual earnings.

Experience in certain countries shows that in fact changes in actual earnings may differ from changes in rates of wages and in average wages per hour. But this does not exclude the fact that in other countries changes in rates of wages may be considered as approximately representative of changes in actual earnings in certain industries and under certain conditions.

While recognising that, in normal conditions, the standard of living may be considered proportional to actual earnings, it must be recognised that changes in hours worked and other social conditions equally affect the standard of living, and the accuracy of an index number based on actual earnings. In these cases, it would be desirable to take hours of labour into consideration.

2. *Industries and Categories of Workers to be Included.* For the construction of such index numbers it would be desirable to consider changes in the wages of the wage-earning class as a whole ; but as in practice this would be rarely possible,

it is necessary to select certain industries and categories of workers which would be representative of the wage-earning class. In this case it will be necessary to indicate clearly the industries and categories of workers covered by the statistics.

If it is desired to measure the standard of living of the wage-earning class as a whole, it is indispensable to include agricultural workers, as well as workers in industry proper. But as in most countries statistics of the cost of living of agricultural workers are not available, it will be necessary, when one wishes to compare the index number of wages with the index number of the cost of living, to consider separately the workers in industry proper.

3. *Choice of Districts.* Where it would not be possible to cover the whole country, districts should be chosen so as to be representative of the whole country. If adequate consideration is not given to this very important point, there is the danger that wage index numbers will be compiled which are not representative of the actual situation, either from the point of view of the levels of wages of the wage-earning class, or from the point of view of their changes.

4. *Frequency of Compilation.* From the point of view of the practical use of these statistics, it would appear reasonable that the frequency of compilation should be determined in relation to the stability of economic conditions, compilation being less frequent when these conditions are more stable.

From the point of view of facility in collecting the statistics and for the purpose of ensuring their accuracy, there may be certain reasons, as is shown by the experience of a number of countries, for the compilation of the statistics at frequent intervals, even when economic conditions are stable.

In any case, it is opportune to determine frequency of compilation in relation to the systems of wage payment in use in the different countries, selecting periods for which the wage payments may be considered complete. Generally a period of one month (or four weeks) would appear to be the most suitable, and to be satisfactory in relation to other general uses of the wage index numbers. Where the supply of information depends on the good will of the employers, it is necessary to take care that the statistics for successive periods relate to the same establishments. If this condition cannot be realised, it would become necessary to obtain also statistics for the preceding period in order to enable the figures for successive periods to be connected by the chain method.

When a system of payment includes supplementary items of remuneration that cover more than one period of normal payment, it is necessary to allocate such items proportionately among the normal periods that they cover, or to average them over the whole period intervening between one such supplementary payment and the next.

5. *Method of Compilation.* As to the method used in establishing these index numbers, the most precise consists in relating the total actual earnings compiled or calculated for a given period to the corresponding actual earnings for the period taken as base. These averages may be compiled per worker, or better, per member of the family, if it is possible to include the earnings of other

members of the family[1]. The last consideration, which may be important in international comparisons, does not, however, have any appreciable effect on time comparisons in a country.

The calculation of a simple or a weighted average index number for the various industries and occupations, the weights remaining constant during the various periods, may lead in certain circumstances to false conclusions, for they do not take into account the movement of workers from one industry to another and from one occupation to another. These movements may, in certain cases, be of great importance. In consequence, it may be necessary to use separate indexes for the different industries, and in combining them to revise the weighting as often as possible so as to take account of these changes. For such a series of index numbers, the choice of base period does not influence the index number.

It would be desirable, however, that all countries should adopt a common base period and for various reasons a post-war period is favoured. This does not exclude, naturally, the possibility for certain countries of constructing a series with pre-war bases. The fact that in various countries statistics of wages are in their infancy or in course of being organised, and also the fact that in various countries economic conditions are not yet stable enough, hinders the fixing at present of the most appropriate base period common to all countries. In a general way it would be preferable not to choose the first period for which the enquiries are made, as in general the first enquiries are not the most exact.

II. CONSTRUCTION OF INDEX NUMBERS OF WAGES FOR MEASURING IN EACH COUNTRY THE CHANGES IN THE FLUCTUATION IN THE STANDARD OF LIVING IN DIFFERENT INDUSTRIES OR OCCUPATIONS.

It is of interest for certain purposes to measure fluctuations in the standard of living, not of the workers as a whole, but in different industries or occupations, without taking into account fluctuations in the standard of living of the workers as a whole, which may arise from variations in the numerical importance of different industries or occupations. In this case, the same methods are to be recommended as to choices of wage data, of localities, and of periods.

III. CALCULATION OF INDEX NUMBERS OF WAGES AS AN AID IN FORECASTING ECONOMIC CONDITIONS.

1. *Choice of Data.* In countries which do not possess well-organised statistics of unemployment, overtime, and short time, or in countries where the wage rates are fixed for a determined and fairly lengthy period, the statistics of earnings have advantages for following economic fluctuations. In countries for which the statistics of unemployment, etc., are well organised, and where rates of wages can be changed according to economic conditions, it may be useful to consider rates of wages also as an index for economic forecasting, as, at the beginning

[1]These averages will usually be compiled per earner, but when it is possible to obtain the information they may also be compiled per family. In this case the average size of the family should be given, expressed, if possible, in terms of "adult men."

of a crisis, these rates may vary according to the orders received by establishments, and consequently may constitute a more sensitive index than that of actual earnings.

2. *Industries and Categories of Workers.* In every country it is necessary to take into consideration the industries and categories of workers whose variations in wage rates or actual earnings are the most sensitive; the work of choosing the industries and categories most appropriate for this purpose must be left to the specialists of each country. Certain industries even of less economic importance, like the luxury trades and printing, may give interesting information in this field, whilst industries which receive orders long periods in advance, and may in certain cases be the more important ones from the economic point of view, may be less suitable for forecasting.

In each branch of industry, the best organised establishments which can estimate with the greatest certitude the future development of the market should primarily be considered.

3. *Choice of Localities.* In order to establish economic forecasts, it is advisable to take into special consideration certain centres or localities which, either because of the concentration of industry, or because of some special development, or for other reasons, are, as experience has shown, the first to show symptoms of crisis or of economic revival.

4. *Frequency.* The interval chosen should be as short as possible.

5. *Method of Compilation.* It would be advisable, even if it were desired to reduce the various information into one index, to publish separately the information for the various industries, occupations, and localities, so that all necessary information would be available for the interpretation of these indexes.

IV. COMPILATION OF INDEX NUMBERS OF WAGES TO MEASURE EARNINGS PER HOUR IN RESPECT OF WORK OF COMPARABLE CHARACTER AND EFFICIENCY.

1. *Choice of Data.* It may be assumed that the best method theoretically would be to determine separately the average wages per hour of normal work and the average wages per hour of overtime, and then to eliminate the influence of varying amounts of overtime by combining these two averages in a constant ratio.

As in many countries it is not possible in practice to distinguish between normal and overtime earnings, the most practical method is to calculate a single average by dividing the aggregate amount of actual earnings—for normal and overtime work and including special allowances, payments in kind, etc.—by the total number of hours worked. The objection to this method of calculation is that changes in the payment per hour worked may result from a mere change in the proportion of overtime worked to normal hours; this objection being the more important, the more significant the changes in this proportion.

2. *Industries and Categories of Workers.* The comparison aimed at is one between categories of workers belonging to selected occupations who work with approximately similar equipment and under similar conditions in different countries or in different periods. It must be recognised, however, that the individual workers who perform the same occupations in different countries and in various periods may diverge in varying degrees from the average worker in respect to individual skill and efficiency. This objection will be the more important in practice, the more restricted the number of occupations and the number of workers considered.

Even if the comparisons between different countries may on this account be open to doubt, it may well be that the variations in time shown by these index numbers may be comparable.

3. *Localities.* It may be assumed that the localities should be representative of the conditions of the whole country. Consequently it may not be sufficient to limit the statistics to capital or principal cities, because the differences, in this respect, between these and the rest of the country may be more or less great according to the country or the period considered.

4. *Frequency.* If it were possible to determine separately the average wages per normal hour and per hour of overtime, it would be desirable to secure data as frequently as possible. Since in general such data are not available, it will be necessary to take rather long intervals so that the different circumstances influencing the amount of overtime work may arrange themselves out.

5. *Method of Calculation.* It goes without saying that the different occupations chosen for international comparisons will comprise different numbers of workers in different countries, and that these differences will not be similar in all countries and will even present considerable variations from country to country.

Since the index numbers are to be used to measure the changes in the earnings per hour of work of a given nature and given efficiency, it will be necessary to calculate as many special index numbers as there are, from this point of view, different categories, and then to compute an average of these index numbers.

It is evident that the index numbers calculated for different categories of workers should be weighted according to the number of workers in each category. A practical difficulty in comparing the index numbers in different countries arises from the fact that the numbers of workers of each category would vary from country to country, and that there is no reason for taking as base the number of workers in one country rather than that in another country. In order to avoid this difficulty, it might be advisable to repeat the calculation as many times as there are countries, using in turn the weight corresponding to the conditions prevailing in each country.

The results of the calculation will show whether the application of the different methods of weighting will produce significant deviations.

V. COMPILATION OF INDEX NUMBERS OF WAGES FOR THE PURPOSE OF MEASURING THE LABOUR COST PER UNIT OF PRODUCTION.

If the unit of production is taken in the sense of a unit of value, the determination of labour cost per unit of production consists in calculating the percentage of the total value of production represented by the aggregate wages paid. It is evident that even if in some countries and in certain branches of productive activity firms already furnish data of this kind, it is not possible to expect at present an extension of these enquiries over all branches of economic activity and all countries. In this respect the Committee, while hoping that this will be possible in respect to an increasing part of production and increasing number of countries, considers that the collection of data on wages, cost of labour, and cost of production should be organised as far as possible so as not to give rise to fears or opposition on the part of the firms concerned. Even if this opposition to supplying such detailed information is sometimes due rather to habits or traditional ideas which are no longer justifiable, it is necessary in any case to take account of them because the sincere collaboration of the heads of firms constitutes an exceedingly useful element in ensuring the accuracy of the data.

In any case the possibility may be considered of measuring the variations, between different periods or different localities, in the labour cost as an element in the total cost of production. There are, in fact, several countries which conduct censuses of the value of production for the whole country or for industry as a whole, or for industrial production, or for manufacturing, or for large industries, or even for agricultural production. For these countries it would be possible to establish index numbers showing the variations in the value of the production as between different periods. If it should be possible to establish, in addition to this series of index numbers, another series of index numbers relating to aggregate wages paid to the workers covered, it would be possible to state whether the value of production has increased more or less rapidly than the aggregate wages bill, and consequently whether the percentage of wages in the total cost of production has increased or decreased during this period.

Similarly, it is possible to proceed to comparisons between different countries, provided that the data concerning the production of these countries are comparable between themselves ; it is, however, difficult to satisfy this condition.

It is evident that this method may be applied either to production as a whole or to certain special branches of production, or further to a particular industry. It is obvious that care should be taken in interpreting the variations in the percentages showing changes between different periods as well as between different countries, because these variations or differences may be due to extremely different circumstances, such as differences in machinery and equipment, in natural conditions, in the efficiency of labour, etc.

In compiling these index numbers, it is convenient to proceed as follows :

(1) To take as bases the actual earnings—that is to say, the aggregate and not the average earnings.

(2) and (3) If it is not possible to take into account all localities and industries concerned, to choose representative localities and industries.

(4) To obtain records of wages for the same periods as for the censuses or evaluations of production, which can only be effected at rather long intervals.

(5) To adopt for the index numbers of wages the same base as for the index numbers of production, and to follow in respect of weighting the principles specified under I. and II., according as it is proposed to make, or not to make, allowance for the effects of differences in the importance of the production of different industries.

VI. COMPILATION OF INDEX NUMBERS OF WAGES FOR MEASURING THE VARIATIONS IN THE PROPORTION OF THE NATIONAL INCOME FORMED BY WAGES.

The percentage of the value of production represented by the aggregate wages of labour may have a very different significance according as it applies to primary production (extractive industries, forestry or agriculture) in which the consumption of the products of other industries is of small importance, or to manufacturing industries in which an important part of the value of the product is due to raw materials or semi-manufactured products. This inconvenience might be avoided if the total wages are related not to the total value of production but to the value of the net product of industry.

The relation between the aggregate earnings of labour as a whole and the national income is of particular interest from theoretical and practical points of view.

As regards the choice of data concerning wages, industries, localities, the frequency of collection, and the methods of calculating the index numbers, the principles indicated under V. may in general be applied.

However, it is to be observed that the comparisons between different countries may be in practice more frequent and less difficult in this case. In fact, many countries in which comparable data concerning the value of production are not available calculate approximately the amount of national income

Per contra, the comparisons as between different periods would probably be less frequent in the present case because the variations in the income can be evaluated with sufficient accuracy only at fairly long intervals.

RECOMMENDATION

The Conference, in approving the report of the Committee on Wage Index Numbers commends its recommendations to the attention of the authorities responsible for the compilation of wage statistics in the different countries and the International Labour Office, and undertakes, by the mutual exchange of information and otherwise, to assist in bringing wage statistics into accord with the principles therein laid down.

COMMITTEE ON INTERNATIONAL WAGE COMPARISONS

I.

(1) The Committee is impressed by the fact that a great variety of wage statistics is collected in the various countries. In general these statistics may be described as statistics of earnings or of wage rates. Some countries are strong in statistics of rates, others of earnings. It is desirable that records of the movement of both rates of wages and earnings should be available. The Committee therefore recommends that:

(*a*) The countries which are weak in statistics of earnings take steps to add to those statistics by collecting statistics of earnings, for the principal occupations as well as for the chief industries, and of total hours worked from which it would be possible to compute earnings per hour, and that

(*b*) The countries which have concentrated on statistics of earnings improve their figures of wage rates and of changes in wage rates.

(2) It is evidently of the greatest importance that the expressions " earnings " and " rates of wages " should have the same meaning in the statistics of the different countries. With this object the Committee recommends that:

(*a*) The statistics of the different countries indicate clearly what is understood by the expressions " rates of wages " and " earnings," and particularly what are the payments in money and in kind which are included in " earnings ";

(*b*) At intervals, special enquiries should be undertaken to show what are the differences between the rates of wages and average wages (earnings) of different branches of industry and categories of workers.

(3) The Committee is of the opinion that attention might be particularly directed to defects in the information at present available in the various countries if the International Labour Office would compile an annual statement, if possible in tabular form, by industries, either of wage rates or earnings of both. The statement should, if possible, also include for the various industries in each country the full-time and actual hours together with their distribution.

It is considered that the publication of such information would encourage the various countries to supplement their statistics as to rates or earnings or both, and that in course of time the annual statement would gradually improve until it would provide material for more adequate comparisons.

II.

The Committee is impressed by the limitations of the present quarterly statistics of wages published by the International Labour Office, due to the fact that few industries and occupations in, generally, only one city in each country are included.

The Committee believes that it would be possible to improve the statistics by adding to the number of occupations and of localities. It therefore recommends that the Conference invite the International Labour Office to consider whether these defects could possibly be remedied by asking the national authorities

concerned to supply them with additional information necessary for this purpose.

The Committee has selected a few additional occupations which appear not unsuitable for immediate inclusion. These are named in the annex to these Recommendations. The Committee also considers that the number might be further increased.

The Committee also ventures to suggest that the International Labour Office might be asked to consider the possibility of consulting with competent bodies in the several countries as to whether other localities could be added to the present list, and the further question whether it might be possible to indicate more definitely the divisions of industry to which some of the occupations included belong and to omit any localities which are not really representative of any country as a whole.

The occupations proposed for addition are confined to non-localised industries. It might be possible also to include occupations from other non-localised industries, such as railway transportation, and also commercial and municipal employees. Localised industries such as iron and steel, textiles, mining, and shipbuilding can only be dealt with by consultation with the representatives of the several countries, and certain occupations which come under this head and the towns in which they are found might also be added to the list.

If fuller information on the lines indicated is obtainable, the collection and publication of statistics for localised and non-localised industries on a half-yearly or yearly basis might be adequate.

ANNEX

Building Industry :
- Structural iron workers.
- Concrete workers.

Electric Power Distribution :
- Electrical engineers.

Electrical Installation (Buildings) :
- Electrical fitters.

Transport :
- Tram and bus drivers.
- Tram and bus conductors.
- Motor Drivers (van and lorry).
- Horse drivers.

RESOLUTIONS ARISING OUT OF THE SECOND CONFERENCE, MAY 1930

COMMITTEE ON INDEX NUMBERS OF WAGES

(1) The construction of index numbers to measure the movement of wages, although designed primarily for use within a country, is of importance also for the international comparison of wages. Any divergence between the movement in two countries is the reflection of a significant change, and may be a cause of further change in the economic relations of the two countries. It is important, therefore, that indices of wage-movements in different countries should be made available for purposes of comparison, and the Committee welcomes the initiative of the International Labour Office since the last Conference in publishing together all the available indices of wage movements.

(2) The Committee are of the opinion that the indices published should take three forms :

(*a*) It is desirable, whether a single numerical index is compiled or not, that as much as is practicable of the detailed information on which such numerical indices may be based, should be published. The problems, in the elucidation of which wage statistics are required, are so numerous and varied, that it is not possible to meet all the needs that may arise. It is, therefore, important that such material as exists should be made available for the use of students, and not merely numerical indices based on this material. Full publication of details is necessary also to prevent misunderstanding and misuse of indices.

(*b*) A general index, inclusive of as much of the available material for each country as can be obtained regularly, should be constructed, where the material is adequate. The publication of such an index, however, would be dangerous, unless accompanied by an indication of the movement of wages in the chief component industrial groups. Such more detailed indices should, where possible, give separately the movement of wages of skilled or unskilled, and male and female workers.

(*c*) A special index for each country embodying the movement of wages in certain selected industries for the special purpose of international comparison. This index might be modelled on the index set forth in the American report (p. 241), combining the indices for general manufacturing, railways, building and coal mining. Representative rates for these groups can probably be found among the wage statistics of most countries ; but whatever combination is included, it should be restricted to industries in which wages are determined by purely industrial conditions, industries in which wages are influenced by political considerations being excluded.

(3) The Committee would call attention to certain desiderata in the presentation of statistics. Where possible actual figures of wage rates or of averages of wage rates should be given, as well as the index or indices of change in wage

rates, since it is possible for actual wage rates to remain unchanged, while the index number in which they are combined changes on account of some alteration in the proportion of different classes of workers, or the rise to importance of some hitherto unimportant industry.

Tables should be accompanied by notes warning the reader of the limits within which and purposes for which the figures may be used. References to the official publications of the different countries from which the figures are taken or the indices compiled should always be given.

The Committee wishes to stress the Recommendation of the 1929 Conference that statistics of both rates of wages and earnings should be compiled. Pending collection of such comprehensive statistics, they recommend that rates and earnings should be given wherever they are available; that it should be made clear whether the figure given represents wages or earnings where only one is available; and that where rates only are embodied in the index, the relation between earnings and rates, in the years for which figures of earnings are available, should be given. They suggest also that it may be advisable to omit from any index based exclusively upon rates, occupations in which it is known that the divergence between earnings and rates is considerable.

Where possible the data on wages should be compiled and published monthly, as is already done in certain countries. This is necessary to make possible the study of seasonal fluctuations.

Both hourly and weekly rates and earnings should be given when possible.

In any industry or occupation in which a large proportion of women is employed, it is desirable that a separate index number of women's wages should be compiled. Where only a small proportion of women are employed, this would be impracticable; but in this case it should be stated whether the women's rates are included or excluded from the index for the industry or occupation which is given. Statistical authorities should print full and repeated explanations of the principles on which, and the methods by which, any indices which they publish are constructed.

COMMITTEE ON COST OF LIVING INDICES

(1) In view of the fact that international comparisons of cost of living, which are the bases of all international real wages comparisons, are defective because of the lack in various countries of adequate recent comparable budget studies, the Committee recommends that the various countries which have not made family budget enquiries within the last five years be requested to make new and comprehensive studies of the budgets of working-class families; to conduct these enquiries as soon as possible (and not later than the end of 1932); and to take account of the studies on these subjects issued by the International Labour Office and Recommendations made by the several Conferences of Labour Statisticians.

(2) In order to supplement international real wage comparisons and to throw further light on actual living conditions among workers in various countries,

the Committee recommends that a descriptive detailed study be made (carefully planned and very limited in scope) of the mode of life (work, wages, lodging, dress, dietary, amusements, etc.), of typical high, medium, and low-paid workers in various countries, such as railway workers, miners, builders, etc.

(3) In order to see how far different methods of comparing real wages agree with one another, the Committee recommends as desirable :

(*a*) While awaiting new budget enquiries, to consider the compilation of these comparisons on the basis of the budgets of the principal countries included in the comparison, instead of grouping the budgets, or using an international budget. Such comparisons might be made once a year ;

(*b*) When results of family budgets are available, to make allowances as far as possible in indices based on food, fuel, and lighting, for rents and other items of expenditure. The results of these allowances should be indicated separately ;

(*c*) In the case of countries where there are outstanding differences in the mode of living in different districts, to use as far as possible where comparisons relate to wages in different towns, the budgets of the towns considered, and where comparisons relate to wages in the country as a whole, the national budget ;

(*d*) That in view of the fact that cost of living index numbers depend more on the prices than on the composition of the budgets, and that retail prices of the same article vary considerably according to quality, precautions be taken with a view to ensure that, as far as possible, the comparability of prices is maintained. It would be desirable before making comparisons that the statistical offices of different countries be requested to furnish detailed information as to the quality of the articles indicated in the budgets, and for any observations to which these budgets may give rise from the point of view of international comparisons.

REPORTS, PRESENTED TO THE CONFERENCES, ON THE EXISTING MATERIAL ON WAGES AND HOURS OF LABOUR IN EACH OF THE COUNTRIES REPRESENTED

INTRODUCTION

IN the preparation of the following National Reports an attempt was made to introduce as great a degree of uniformity as possible by inviting those responsible for each of the reports to follow as closely as was practicable a standard tabular form describing the nature of the wage material in existence. Germany, Canada, the United States and, to some degree, the United Kingdom were able to follow a uniform method of description and classification in tabular form. The headings and sub-headings which were adopted for these tables were as follows :

I. RATES

(1) (*a*) Industry.
(*b*) Occupation or sub-group.
(2) (*a*) Origin of rate (e.g. in collective agreements, legislation, arbitration award, etc.).
(*b*) Source of the data (e.g., public statistical authorities, employers' or workers' organisations, etc.).
(3) Scope :
(*a*) Territorial scope (e.g., areas, number of towns, etc., covered).
(*b*) Frequency of collection.
(*c*) Classes of workpeople (age, sex, skill, etc.).
(*d*) Proportion of workers covered.
(4) Character :
(*a*) Minimum or standard rates.
(*b*) Time or piece rates or other methods.
(*c*) Hourly, daily, weekly, etc.
(*d*) Are supplementary payments included or excluded ? (Family allowances, social insurance contributions, payments in kind, etc.).
(*e*) Do the published particulars give actual rates, averages (weighted or unweighted) predominant rates, or a range ?
(5) Hours of Labour :
(*a*) Normal hours.
(*b*) Actual hours.
(6) Title of published source.

II. EARNINGS

(1) (*a*) Industry.
(*b*) Occupations or sub-groups.
(2) (*a*) Origin of data (individual earnings or total wages bill).
(*b*) Source of data (official sources, private sources, etc.).
(3) Scope :
(*a*) Territorially.
(*b*) Frequency of collection.
(*c*) Periods to which the figures refer.

(*d*) Classes of workpeople : (i.) Age.
(ii.) Sex.
(iii.) Skill.

(*e*) Proportion of workers covered.

(4) Character :

(*a*) Time earnings or piece earnings.

(*b*) Time unit adopted (per hour, week or year).

(*c*) Are supplementary payments included or excluded ? (Family allowances, social insurance contribution and payments in kind).

(*d*) Are full-time earnings and actual earnings distinguished ?

(5) Hours of Labour :

(*a*) Normal hours.

(*b*) Actual hours.

(6) Title of published source.

CANADA

THERE are three main official sources of data on wages and hours of labour in Canada, viz. (1) the Dominion Bureau of Statistics (2) the Dominion Department of Labour, and (3) certain provincial authorities, including Departments of Labour, Minimum Wages Boards, Workmen's Compensation Boards, etc. A prefatory note on the general scope of the activities of these bodies in wages statistics may be useful:

I. DOMINION BUREAU OF STATISTICS.

The data on wages collected by the Dominion Bureau of Statistics are varied in character. They consist almost wholly of data relating to earnings and average wages rather than to specific rates. With regard to hours of labour, however, a considerable amount of detailed information is available. The different branches of the work of the Bureau in which these data are collected are as follows:

1. *The Decennial Census of Population.* This has rubrics on (*a*) occupations, and (*b*) annual earnings. The latter are compiled for the fifteen largest cities of Canada by age groups and sex, as well as by occupations. (See Census of 1921, Vol. III.). A critical analysis is in preparation.

2. *The Annual Census of Industry.* This covers fisheries, mines, forest products, power stations, general manufactures and construction, i.e., the entire field of production outside of agriculture and is the largest single source of information on the subject under the Bureau. In this Census the number of employees, male and female, on the 15th of each month is reported by each operator, together with the total annual wages bill. The data relate to (*a*) salaried employees and (*b*) wage-earners, outside pieceworkers being differentiated in the latter. From the years 1917 to 1922 the schedules also obtained an analysis showing the number of employees in each establishment on specified rates per week, e.g., under $5, $5 to $7, $7 to $10, etc. This rubric, however, has been discontinued.

Under the heading of hours of labour, the following questions are asked:

(*a*) Number of days in operation during the year:

(Total of 1,2 and 3 will ordinarily be 304, except where plants are operated on Sundays and holidays).

1. On full time.....days. 2. On part time .....days.

3. Idle.....days.

Number of shifts usually worked per day.....

(*b*) Number of wage-earners in month of highest employment working:

1. Eight hours or less per day..... 2. Nine hours.....

3. Ten hours..... 4. Over ten hours.....

(*c*) Average number of hours usually worked by a wage-earner:

1. Per day or shift..... 2. Per week.....

All factories, mills, etc., known to be operating in Canada, irrespective of value of products, are included in this Census. The period covered is the calendar year, or the business year most nearly corresponding, the canvass being made in the first instance by mail, followed up by visits of officers of the Bureau to

delinquent concerns. All data are shown by industries for Canada, for each of the Provinces, and in the case of the more important items, for each of the larger cities.

3. *Trading Census.* A census of trading establishments was taken by the Bureau in 1924; it contained questions as to the average number of employees on the pay-roll (male and female) and the total salaries and wages paid. The compilation shows the results for forty-one different classes of establishments under the three headings of (1) wholesale, (2) retail, and (3) wholesale-retail establishments. While there is no definite policy as to the repetition of this census, it is expected that eventually it will be taken every five years.

4. *Agricultural Wages.* In January of each year a return is collected by the Agricultural Division of the Bureau with regard to the rates of wages paid to farm help, male and female.

5. *Transportation and Public Utilities.* A Branch of the Bureau collects annual statistics of steam railways, electric railways, telegraphs, telephones, express companies and central electric power stations. Details as to the scope of these statistics are given further on.

N.B.—The Bureau publishes a monthly review of Employment, which includes a return from all employers of labour having 15 hands and over. It does not include pay-roll statistics.

II. DEPARTMENT OF LABOUR.

(1) The Department of Labour collects annually the nominal rates of wages and hours of labour for a selected list of employees. The survey as published covers the building trades (9 classes); the metal trades (4 classes); the printing trades (6 classes); railways (23 classes), electrical railways (5 classes); civic employees (3 classes); carters, longshoremen, etc. (3 classes); telephone employees (5 classes); laundries (10 classes); lumbering, including logging and sawmilling (30 classes); mining, including coal and metal; common labour in factories; miscellaneous factory trades, including cotton mills, woollen mills, knitting mills, shirt manufacturing, ready-made clothing, flour mills, bread and cake manufacturing, biscuit and candy manufacturing, meat packing, breweries, pulp and paper, carriages and wagons, furniture manufacturing, sash and door, machinery manufacturing, automobiles, agricultural implements, stove manufacturing, electrical apparatus, ship building, tanners and leather goods, boots and shoes, harness and saddlery, rubber.

N.B.—The rates covered as above include most of the trades in the larger cities and towns and in coal and metal mining, lumbering, etc., in the more important districts or provinces where labour is employed.

The data are collected by correspondence with employers of labour and to a lesser extent with trade unions where the labour in question is unionized. Considerably more data are collected than are published.

Index numbers, unweighted, by broad industrial groups, are made for the whole of Canada, on the basis of 1913.

(2) In addition to the above, the Department of Labour publishes in the *Labour Gazette*, the official journal of the department, the text of a large number of industrial agreements concluded from time to time throughout Canada. It also,

as administrator of the fair wages resolution, publishes in the same medium the fair wage schedules drawn up by its officers as governing the wages of labour employed on government contracts throughout the country. Both of these sources are abstracted to furnish material for the wages records referred to in paragraph (1) above.

III. PROVINCIAL AUTHORITIES.

Several of the Provincial Governments in Canada have passed and administer legislation bearing on rates of wages and hours of labour. Minimum Wage Boards exist in most of the provinces for the regulation of women's and children's wages (in British Columbia the regulation extends to male labour). Certain of the provincial Workmen's Compensation Boards also publish wages data, and the fair wage policy is generally in effect. In the case of British Columbia a more or less general survey of wages is made and published by the Provincial Department of Labour along lines similar to those of the Industrial Census of the Dominion Bureau of Statistics. For the most part, however, provincial data on wages are incidental. The more important rates established by provincial authorities are noted from time to time in the *Labour Gazette* of the Dominion Department of Labour, and the latter may accordingly be regarded as a general and comprehensive source of the data existing in Canada on rates of wages.

CANADA : RATES

INDUSTRY		ORIGIN		SCOPE					CHARACTER				HOURS	PUBLICATIONS
Industry	Sub-Group	Origin of Rate	Source of information	Territorial	Frequency	Classes of Worker	Proportion of Workers	Minimum or Standard Rate	Time or Piece Rate	Hourly, Daily, or Weekly Rate	Supplementary Payments	Actual or Average Rate		
Data given for following trade groups : 1. Building Trades 2. Metal Trades 3. Printing Trades 4. ElectricRailways, Light & Power 5. Civic Employees 6. Steam Railways, Cartage, etc. 7. Telephone Employees 8. Laundries 9. Lumbering 10. Mining : Coal and Metal 11. Electric Current Production and Transmission 12. Miscellaneous Factory Trades Occupations in industries such as Cotton, Candy, Furniniture, Automobile Manufacturing, etc.	Data given by Occupation	Collected by correspondence with employers mainly ; also in unionised areas, with trade unions	Department of Labour, Canada (Official)	Covers larger cities for trades such as building, printing, etc. ; Covers more important districts or provinces for mining, lumbering, etc. For data on Factory Trades, no geographical divisions given	Annual	Generally, no distinction by sex	No information	Standard rate.	Mainly time rates. For factory trades, samples of wages and hours are given for individual employees, by occupation. For Steam Railways, rates per mile are given in certain occupations	Full time hourly rates for building, printing trades, etc. Full time hourly, daily, or weekly rates for factory trades ; Maximum annual rates for civic employees	No information	Predominant rates or range given. Index numbers, unweighted, for industrial groups in Canada as a whole, given from 1901–1928	Normal hours of labour per week	Department of Labour, Canada ; "Wages and Hours of Labour inCanada," (annual)
Agriculture	For Males and Females separately	Collected by correspondence from 6,000 crop correspondents throughout Canada	Canada : Dominion Bureau of Statistics, Agricultural Division	Data given by Province and for Canada as a Whole	Annual as of Jan. of indicated year	For Males and Females separately	No information	Standard Rates	Time Rates	Standard Rates : per month in summer season and per year. Wages and Board given separately and combined	Supplementary Payments (Board) given separately	Average Rates	No information	Canada : Dominion Bureau of Statistics, Agricultural Division, Published in the "Canada Year Book" (annual)

CANADA : EARNINGS

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Information	Source of Information	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople Covered	Time or Piece Wage	Time Unit	Supplementary Payments	Full time or Actual Earnings		
All Industries ; Agriculture, Logging and Fishing, Mining, Manufactures, Construction, Transportation, Trade, Finance, Custom and Repair work, Domestic and Personal Service, Professional Service, Public Administration, Recreational Service, Clerks, Office, Labourers, All	By Industrial Group and by occupation	Total wage bill and number of wage earners	Canada, Dominion Bureau of Statistics : Census of Population (official)	Covers cities of 30,000 population or over	Decennial	1921	Data compiled by age groups and by sex as well as by occupation	Covers all establishments known to be operating in Canada	Includes all wages, whether time or piece	*Classified weekly earnings ;* for industrial groups, by age groups ; for selected occupations, for males and females separately ; in cities of 30,000 population or over. *Total Yearly Compensation* by age groups and by occupation and sex. Per capita annual earnings may be computed	Supplementary payments appear to be included	Actual earnings given	Average number of weeks employed per male wage earner in 1921	Canada, Dominion Bureau of Statistics, " Sixth Census of Canada, 1921" Vol. III. (decennial)
Data given for : Fisheries, Mines, Forest, Products, Power Stations, General Manufactures, Construction, Trade and Commerce	No occupations specified. Information by industry	Total wage bill for year and number of workers employed on 15th of each month	Canada, Dominion Bureau of Statistics : Annual Census of Industry (official)	Data given for Canada, for each of the Provinces, and, for more important items, for each of the larger cities	Annual	Calendar year or business year most nearly corresponding	Salaried employees and wage earners	Covers all factories, mills, etc., known to be operating in Canada	Includes all wages, whether time or piece	Per capita annual earnings are given, by industry, or may be computed	Bonuses appear to be included	Actual earnings only given	1. Normal hours per day or per shift. 2. Normal hours per week 3. Classified hours per day for month of highest employment	Canada, Dominion Bureau of Statistics, " Annual Census of Industry," (Published in the " Canada Year Book" (annual)

CANADA : EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Information	Source of Information	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople Covered	Time or Piece Wage	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
Trading Establishments ; 1. Wholesale 2. Retail 3. Wholesale—Retail	Data given for 41 classes of establishments under the three main headings	Total wage bill for year, and average number of employees	Canada, Dominion Bureau of Statistics : Trading Census (official)	Data given for Canada as a whole	For year 1924, expected eventually to be taken every five years	1924	Males and Females separately	Census appears to include all establishments	Includes all whether time or piece	Per capita annual earnings may be computed	Bonuses appear to be included	Actual earnings only given	No Data	Canada, Dominion Bureau of Statistics "Trading Census," 1924
Steam Railways	Data given for all occupations, by branch of service and by occupation	Total wage bill for year and average number of employees	Canada, Dominion Bureau of Statistics	Canada as a whole	Annual	Calendar year	Total number of female employees and their total payroll given separately	Covers all railways operating in Canada	Includes all wages whether Time or Piece	Average hourly or daily earnings according to basis of pay and total compensation for year	Supplementary payments appear to be included	Actual earnings given	Total days and total hours on duty given	Canada, Dominion Bureau of Statistics Transportation Branch : "Statistics of Steam Railways of Canada" (annual)
Bituminous Coal-mining	For industry as a whole	Total wage bill for year and average number of employees	Canada, Dominion Bureau of Statistics	By Province and for Canada as a whole	Annual	Year	For salaried employees and wage earners, for males and females separately	Appears to cover all mines	Includes all wages whether time or piece	Average daily earnings total annual compensation	Supplementary payments appear to be included	Actual earnings given	Average number of days worked per year per man	Canada, Dominion Bureau of Statistics, Mining, Metallurgical and Chemical Branch : "Coal Statistics for Canada" (annual)

FRANCE

I. OFFICIAL SOURCES.

Investigation Undertaken by the French Central Statistical Office (Statistique Générale) among Conseils de prud'hommes or Mayors.

THIS investigation is carried out annually by the Central Statistical Office and covers about fifty occupations among men and women. The occupations included are found in most localities and, in consequence, provide means for making valid comparisons. The statistics collected merely represent approximate estimates of wage rates most commonly paid and not averages calculated from detailed information of earnings.

The Central Statistical Office has constructed averages for each occupation, distinguishing between all the towns in France, other than Paris, and the Paris district. Averages have also been constructed for each of the occupations for each Département. This investigation makes it possible to follow the general movements of wages between the following dates 1896; 1901; 1906; 1911; 1916; Feb., 1921; Oct., 1924; 1925, 1926, 1927, 1928, 1929, 1930.

The results of these investigations are published in the Bulletin of the Central Statistical Office. The publication, " Salaires et Coût de l'existence à diverses êpoques jusqu'en 1910," prepared by the same office, should also be consulted.

The Central Statistical Office has also carried out, for 1913, 1921 and the third quarter of 1926, through the agency of Mayors in towns of more than 10,000 inhabitants, an investigation into the wages of domestic servants. The results can only be very approximate estimates since the wages of servants vary greatly according to conditions and the many fluctuating elements in such wages. These results also are published in the Bulletin referred to above.

Statistics of the Mining Industry.

The information provided by each mining concession is tabulated by the Mines' Department. It is published each year for each Département and for the whole country in the " Statistique de l'Industrie minérale et des appareils à vapeur en France et en Algérie." These statistics go back to 1844.

Quarterly Statistics of the Mines' Department.

These statistics, published quarterly, show the average daily wages of surface, underground and total workers for the different mining districts and for the whole of France. They are published regularly in the quarterly Bulletin of the Central Statistical Office.

Report of the Ministry of Labour upon the Salary Scales of Civil Servants.
(See Journal Officiel for Dec. 2nd., 1921).

This gives complete figures of the salary scales of civil servants at the end of 1921. It was intended that such figures should be brought up-to-date and published every five years. The last issue has been delayed until several committees, now engaged upon the readjustment of salaries, shall have completed their work.

Wages among Employees of Railway Companies—Wage Scales.

These give complete statistics of the wage scales of railway employees. Attention is called particularly to the notice of the P.L.M. Company of 15th October, 1920, dealing with " Standards of Pay among Employees," and of the Order of February 29th, 1928, outlining the wage scales operating from March 1st, 1928.

Journal Officiel—Tables annexed to the Prefects' Decrees fixing, for each Département, the wage rates to be employed in the determination of compensation due to agricultural workers who have met with Accidents whilst at work, in pursuance of Articles 8 *and* 9 *of the Law of 15th December*, 1922.

(See the Journal Officiel of 26th November, 1924, for details for the year 1924 and of 27th December, 1927, for details relating to the year 1926).

These tables set up by the Prefects give computed wage rates (and not actual wages obtained by direct investigation) for some ten agricultural occupations among men and women.

Miscellaneous Administrative Reports.

It is possible to obtain some information concerning the wages paid to certain groups of workers from a number of Administrative Reports such as the reports of the Ministry of Finance upon sugar factories and the reports on the operation of State industries, etc. In addition, several Ministries possess similar material. Thus it would be possible to utilize information available through the work of employment exchanges ; the work of the War and Marine Departments in fixing wages for their employees ; and the information in the hands of the Ministry of Labour regarding collective agreements, etc.

II. PRIVATE SOURCES.

Investigations of Hourly Earnings (Time and Piece) carried out by the Paris Confederation of Employers in the Metal, Mechanical and Kindred Industries. (Groupe des Industries métallurgiques, mécaniques et connexes de la région parisienne).

This annual enquiry was carried out for the first time in May–June, 1920, and has since been undertaken at the beginning of each year since 1922. The enquiry gives averages of actual earnings paid to more than 160 specialised occupations in about 20 different industries. The Confederation in 1928 covered 1,057 firms employing altogether 218,950 workpeople. The general results of these investigations are published in the Bulletin of the Central Statistical Office.

Federation of Mining and Metal Industries.

The federation publishes at fairly regular intervals information concerning minimum rates of wages fixed by collective agreements or by Employers' Associations in certain districts (Nantes, St. Nazaire, Calais, Strasbourg, Haut-Rhin, etc.) for workers in the metal industries. Similar statistics for the war years are to be found in the memoranda ratified by the Ministry of Munitions. These minimum rates for several districts will be found in the Bulletin of the Central Statistical Office

Electricity.

The monthly publication—"Revue générale de l'électricité"—regularly publishes a monthly index prepared by the Federation of Employers Generating and Transmitting Electricity, of wages actually paid to workers. This index is given for each of eleven regions from October, 1925, and an index for the whole of the country is available since January, 1927. The index is based upon the average earnings of unskilled labour and shows movements in relation to January, 1923 (=100). It is published in the Bulletin of the Central Statistical Office.

The same monthly publication also gives, since April, 1926, a weekly index of wages. This is for the Paris region and is constructed by the General Federation of Electrical Constructors.

Confederation of Textile Industry of Roubaix—Tourcoing.

This group collects the aggregate figures of wages paid by the associated firms but certain difficulties are to be met with in the interpretation of the figures.

Miscellaneous Associations in the Paris District.

In carrying out its annual investigation into salaries, the Central Statistical Office makes direct enquiries, for certain occupations, of employers associations and other authorities, principally of the Employers' Association of Bookbinders and Printers and trade unions in the clothing industry.

Miscellaneous Industrial Groups.

Generally speaking it is extremely difficult to obtain the substantial information concerning wages which industrial groups, associations, or private firms possess.

GERMANY

THE statistics of wages and hours of labour in Germany are derived from two sources : (*a*) *wages agreements* made between employers' federations and trade unions, which operate in all industries, including agriculture and transport, and usually determine uniform conditions of labour in the individual industries for considerable districts, localities of a certain character or towns ; (*b*) investigations into the *actual earnings and the actual working hours of individual workers*. The official statistics of wages and working hours in Germany can therefore be divided into

1. Statistics of wage rates.
2. Statistics of actual earnings and hours of work.

I. STATISTICS OF TRADE UNION RATES.

In accordance with paragraph 8 of the Wages Agreement Ordinance of 1st March, 1928, and the corresponding instructions issued by the Minister of Labour, every wages agreement made in Germany must be sent free of charge to the State Bureau of Statistics by the parties concerned. The original agreements received form the basis of the current statistics of trade union wage rates.

The German statistics of trade union wage rates ascertain on the 1st of each month the hourly and weekly wages, laid down in the agreement, of skilled and unskilled workmen in the highest age group comprised in the agreement (above 20, 21 to above 25 years of age) in the chief centres of 12 leading industries. These industries are as follows :

Industries	*Districts*	*Towns*[1]
1. Mining	5	
2. Metals		25
3. Chemicals		15
4. Building		34
5. Wood Working		25
6. Paper Making	15	
7. Printing		11
8. Textiles		18
9. Brewing		20
10. Sweets, confectionery, baking ..		18
11. Cardboard Goods		20
12. State Railways		20

In the mining and paper making industries the statistics are based on districts, as these industries are not definitely localised. In the other industries the statistics are based upon definite towns which are considered to be the chief centres of the industry. For the printing trade, statistics are kept for all the categories of towns comprised in the national agreement, as special data regarding the distribution of printers among the various categories of towns are available.

[1] In the printing trade—categories of towns.

In calculating average rates the first step is to ascertain the agreed hourly and weekly wage (with normal working hours) of skilled and unskilled workers in each industry, for each town, category of town or district on the 1st of every month. The rates of wages thus ascertained are then multiplied by the proportion of workpeople to the total number of workpeople in the industry, this proportion being ascertained from the latest industrial census in the same industry and the same towns and districts. The results of these calculations are added together and divided by 100. Weighted average rates are thus obtained, which take into consideration the importance of the individual towns or districts as opposed to unweighted averages which merely takes into consideration the number of towns or districts.

In addition to the average wage rates in each of the 12 industries mentioned, weighted averages are calculated in Germany for three leading groups of industries—means of production, goods for consumption and transport—and for all the 12 industries separately for skilled and unskilled workers. These weighted averages are published together with the comparative figures for the previous month, the percentage alteration in comparison with the previous month being shown.

The nominal rise in wages in comparison with pre-war figures cannot be ascertained in Germany on the basis of wages agreements, as before the war wages agreements were the exception rather than the rule (i.e., in the building, wood, printing trades and brewing) and no really satisfactory comparison can be made of trade union post-war wages with actual pre-war earnings.

In addition to the average figures, the *standard rates of pay* in the individual districts covered by agreements are published regularly in a special table showing, along with the industry and district, the day on which the wages altered; the old and the new rate for skilled and unskilled workers and the resulting percentage fluctuation in the rates of pay. In this table information is also given concerning industries which cannot be included in the average figures for 12 industries owing to some abnormal grouping of the workpeople, e.g., the clothing industry, which embraces scarcely any unskilled workers, and the boot and shoe industry which comprises no skilled workers. Special attention is drawn to cases where this abnormal grouping exists.

As regards *groups of workpeople* the statistics relating to the 12 industries distinguish, as already mentioned, between skilled and unskilled workers, i.e., as a rule between the wage groups with the highest standard rates of pay and those with the lowest (leaving out of account the reductions for younger workpeople). The semi-skilled workers who occupy an intermediate position between the two groups do not exist in all 12 industries and cannot therefore be uniformly treated as a third group of workers. Female workers are included in the published statistics relating to the textile and cardboard-goods trades, in which female workers are numerous.

As regards the *form of remuneration* the official wages statistics avoid wherever feasible mere indications of payment by time. For skilled workers in coalmining,

metals and textiles not the rate of pay per hour, but the trade union piece rate is taken as a basis, i.e., the rate of pay per hour inclusive of the average increase for piece work (generally 15 per cent.) which is usually laid down in the general agreement.

Since August 1st, 1928, the wage agreements received by the Records' Dept. of the Bureau of Statistics for male commercial and technical employees have also been utilised for statistical purposes in connection with wages; the figures are published regularly in " Wirtschaft und Statistik " together with the statistics of wages in industry.

It is impossible to draw up statistics of *hours of work* on the basis of wages agreements. The agreed weekly wages can only be ascertained in accordance with the *agreed regular hours of work*, which are usually 48 hours per week. Regular deviations from these hours, e.g., the agreed working week of 46 hours in the woodworking trade in Berlin, $46\frac{1}{2}$ hours in the building trade in Leipsic, Altona, Hamburg and Kiel, 47 hours in the building trade in Dresden and Chemnitz and $47\frac{3}{4}$ hours in Munich, 51 hours on the State Railways, 52 hours in the Rhenish–Westphalian metal industry (North-west District) and 54 hours for workers above the grounds in collieries—are specially mentioned. Any other deviations, e.g., overtime paid for extra hours when business is brisk and the introduction of short time (less than 48 hours) when the available employment diminishes, cannot be ascertained from the wages agreements.

II. STATISTICS OF ACTUAL EARNINGS AND HOURS WORKED.

The second principal source of information for statistics of wages and hours of employment in Germany is represented by investigations into the actual earnings and the actual working hours of individual workers. This source was chiefly utilised before the war by the trade unions, who carried out a series of investigations into wages and working hours among their members, including bricklayers and bricklayers' assistants (1910), joiners (1911), tailors, tailoresses, and workers in mills producing under-garments, and textile workers (1913). Since the war such investigations have also been carried out for official statistical purposes. In February, 1920 an extensive enquiry into wages and salaries was made by virtue of the ordinance dated March 9th, 1920 (R.G.B. S.309). The results were published in " Statistik des Deutschen Reichs," Vol. 293, Berlin, 1921.

By the law on wages statistics of July 27th, 1922, a new uniform basis was created for wages investigations in Germany. The Law reads as follows:

Paragraph 1

This Government is empowered, with the assent of the Reichsrat and of the Economic Committee of the Reichstag, to order investigations to be made into wages and salaries of workpeople and employees. Before the order is published the views of the expert committee of the Reichswirtschaftrat (Federal Economic Council) must be taken.

Paragraph 2

At the suggestion of the Reichswirtschaftsrat the Government will appoint

a statistical council which is to be consulted, particularly in the preparation of the forms of enquiry for use in the investigation.

PARAGRAPH 3

The expenses sustained by the States for the investigations thus instituted by this Law will be borne by the Federal Government.

PARAGRAPH 4

The Government can order that contraventions against the regulations issued in accordance with this Law be punished by a fine up to 100,000 marks.

PARAGRAPH 5

This Law takes effect from the date of its promulgation.

As an Order dated July 14th, 1927 (R.G.B.S. 185) laid down in detail the manner in which the Law on Wages Statistics was to be carried out, the State Bureau of Statistics is continually making investigations into the actual earnings and hours of labour. These instructions read as follows:

PARAGRAPH 1

In the year 1927 investigations are to be made into the wages and salaries of workpeople and employees in selected trades, localities, businesses, groups of workers and employees. The investigations may be continued in subsequent years. The beginning and extent of the investigations and the order in which the selected trades are to be dealt with is to be determined by the Minister for Commerce in agreement with the Minister of Labour. Investigations into the mining industry require the assent of the Reichsrat.

PARAGRAPH 2

The task of carrying out the investigations and dealing with the data obtained will be assigned to the State Bureau of Statistics, which, after hearing the employers' and workpeople's federations or unions, will select the concerns, groups of workpeople and employees and the sections of the wages lists to be dealt with in the investigations and draw up the questionnaires. The Bureau of Statistics is empowered to demand from the head of the firm or his appointed representative the vouchers necessary to verify the details furnished.

The queries in the questionnaires may refer to the following points with regard to the workpeople or employees engaged during the period under investigation in the selected groups and sections of the wages list:

1. Name, age, position in family, form of remuneration.
2. The number of hours actually worked, with special remarks as to extra hours worked with extra pay.
3. The actual gross wages or salary earned, with special remarks as to extra pay for hours of overtime worked or other extras.
4. The amount deducted from the wages or salary for taxes.
5. The contributions made by the workman or employee and by the employer towards social insurance (exclusive of accident insurance) and towards the unemployment funds.
6. Family allowances (allowances for wife, children and dependents).

On the proposal of the statistical council of the Bureau of Statistics the scope of the questions can be restricted or extended.

PARAGRAPH 3

The responsibility for the completion of the questionnaires and their return within the required time lies with the head of the business or works' manager or his appointed representative. The head of the business or works' manager or his appointed representative must sign a confirmation of the accuracy and completeness of the entries. In the case of lists of workpeople the works' council (or its chairman) is to sign a statement that it has no objection to make to the entries. Where the details are given on single cards a similar statement is to be signed by the individual worker. The works' council has the right to demand an inspection of wages books.

The works' council shall instruct one or more of its members, but in no case more than 3, according to the size of the business, to carry out these duties.

PARAGRAPH 4

Details of the circumstances of individuals and firms obtained through the investigation must remain confidential. The investigations must be used for statistical purposes only and not for other purposes.

PARAGRAPH 5

Fines are imposed upon :
1. Any person knowingly causing untrue or incomplete returns to be made.
2. The head of a business or works' manager, or his representative, who intentionally fails to fulfil the duties laid upon him by this Order, or to fulfil them within the appointed period.
3. Any person acting without due authority contrary to Paragraph 4.

The required details are collected by means of questionnaires which the Bureau of Statistics sends direct to the firms selected in agreement with the employers' and workpeople's organisations and in which the following details are to be furnished for each workman covered by the investigation :

(1) The number of hours actually worked during the period under investigation (including overtime with extra pay) ; (2) the actual gross earnings (including extra pay for hours of overtime or the total earnings for overtime) ; (3) the deductions for " Wages Tax " and the workman's contributions to National Insurance ; (4) family allowances.

The Law on Wages Statistics provides for a Wages Statistics Council for the discussion of all the details of the investigations ; this council is composed of 3 employers' representatives and 3 workpeoples' representatives as ordinary members, with 3 more employers and 3 more workpeople as substitutes. In addition, special experts for individual trades are co-opted.

The accuracy and completeness of the returns must be vouched for by the head of the firm or works' manager and by the workpeople's representative (works' council or chairman thereof). The works' council and the Bureau of Statistics can demand to see the wages books. An untrue or incomplete return is a punishable offence.

Details of earnings are collected of the same groups of workers, of the same methods of remuneration and of the same ages as those mentioned in the corresponding wages rates agreement. Thus, it is possible to make a direct comparison of trade union wage rates and actual average earnings. Groups of workpeople are mostly formed by distinguishing skilled, semi-skilled and unskilled workers, and forms of remuneration by division into payment by time, piece rates or bonuses. From amongst the very varied divisions according to age found in wage rates agreements, it is usual to select the highest age groups (the most important numerically) comprised in the agreements, which generally is above 21 for male workers and above 18 years of age for female workers.

Four successive working weeks are generally chosen as the *period under investigation*, in order to reduce to some extent the effect of fluctuations in earnings and to ascertain, in the case of workers on piece rates, not only the usual weekly payment on account, but also the payment made in final settlement. The concerns under investigation are allowed, however, to choose the beginning and end of the period under investigation in conformity with the actual periods comprised in the settlement ; nevertheless the details must be given, in the case of weekly settlements, for four successive working weeks, and in the case of fortnightly settlements, for two successive fortnightly periods.

Returns are to be made in accordance with wages books and pay lists for each

single worker giving total figures for the period under investigation. The following questionnaire is generally used for official investigations into wages:

Names of Workpeople	How many hours of work were performed by each of the workpeople named in the previous column during the period under investigation?		What gross wages were earned, inclusive of deductions from wages for taxes and workman's contribution to National Insurance and family allowances?		What amount of the gross wages shown in Column 4 is accounted for by:		
	Total?	How many extra hours with extra pay?	For the hours of Work shown in Column 2?	Including the extra hours mentioned in Col. 3?	Deductions from wages for taxes?	Worker's Contribution to National Insurance (Sickness Unemployment Insurance)?	Family Allowance?
			Marks Pf.	Marks Pf.	Marks Pf.	Marks Pf.	Marks Pf.
1	2	3	4	5	6	7	8

The average *earnings per hour* are not asked for, but are ascertained for each trade and each locality from the total of the gross earnings, minus the total of the increases for extra hours, divided by the total number of hours worked. For comparisons with wages according to wage rate agreements the extra payments which vary with the composition of the family are also deducted from the earnings per hour, since the extra payments in the form of social benefits laid down in wage agreements cannot be included in the calculation of rates without knowing the constitution of the family and it would not be valid to compare the agreed wage rate without family allowances, with the average earnings inclusive of family allowances.

The average weekly earnings are calculated from the total of the gross earnings (inclusive of all extras) divided by the number of weeks worked and the number of workers under investigation. The average weekly hours of work are calculated in an analagous manner. Thus the weekly earnings and hours of work relate to the actual number of hours of work, ascertained as an average, with the inclusion on the one hand of short time, absence through illness, holidays, etc., and on the other hand of extra hours of labour, night work, and work done on Sundays and public holidays.

As far as possible a comparison is also made between the average earnings ascertained from the investigation and *pre-war earnings*. The comparison is usually made on the basis of gross weekly earnings, i.e., taking into account reductions in the hours of labour. In order to determine what amount is actually left to the worker as wages, the gross weekly earnings pre-war and post-war are reduced by the Tax on Wages (before the war State Tax on Income and municipal dues) and the contributions by the worker to the National Insurance Fund (before the war sickness and convalescent insurance, after the war sickness, convalescent

and unemployment insurance). The amounts of the wages (gross and nett.) thus ascertained for the period under investigation are finally expressed in terms of pre-war purchasing power with the aid of the official German index of the cost of living.

Further, in addition to the average wages and average hours of labour for each group of workers, details are given for each of the different types of wage payment and hours of labour.

The investigations are carried out successively in the principal trades. It is laid down that the investigations in the individual trades shall be repeated at regular intervals. Up-to-date investigations have been carried out in the textile industry (September, 1927), woodworking (March, 1928), chemicals (June, 1928), iron and steel production (October, 1928), metal working (October, 1928), boot and shoe manufacture (March, 1929), printing (June, 1929), lithographic works (July, 1929), and in the building trade (August, 1929). Preparations are being made to carry out investigations in the papermaking and paper goods trades.

As regards the details of these investigations, reference should be made to the synoptic table dealing with the statistics of actual wages in Germany.

In addition to the investigations into wages made by the Bureau of Statistics, special statistics of *coalminers' wages* have been kept in Germany since the 80's of the nineteenth century. These are based, not upon the earnings of the individual workers, but on the total amount paid out in wages, these being divided, for example, by the total number of shifts performed, thus giving the average earnings per shift. From the number of shifts worked during the period examined (month, quarter), divided by the number of working days, the number of workers known as " full-time workers " is ascertained. This number is smaller than that of the miners actually taken on, as it does not take into account the reduction due to sickness, lost shifts, etc. The average earnings per shift are calculated not only for the total number of workers above and below the surface, but also for the following groups of workers :

(1) Miners in the stricter sense of the word employed underground in opening up and extracting, more especially coal and mineral hewers ; (2) Other workers below the surface, more especially hewers engaged in repairs ; (3) Adult male workers above the surface, more especially specialist workers ; (4) Juvenile male workers below the age of 16 ; (5) Female workers.

The results are compiled by the Official Bureau of Statistics for the whole of Germany and for the individual mining districts, separately for the different German States and the different branches, and published quarterly in the " Reichsarbeitsblatt." The statistics cover coalmining, the extraction of brown coal, ore and salt mining and some other branches of the mining industry. The Bureau of Statistics also publishes the average earnings per shift of coal-hewers and hewers in mineral mines and adult male workers above the surface, exclusive of artisans, in the five principal colliery districts. These statistics appear monthly in " Wirtschaft und Statistik " and yearly in the " Statistisches Jahrbuch für das Deutsche Reich."

WAGE RATES IN GERMANY

Industry	Branch of Industry or Class of Employment	Basis of Rates of Pay	Authority for Statistics	Extent of Investigation				Description of Figures Supplied					Hours of Work	Titles of Publications
				Localities	Frequency of Investigations	Groups of Workers (Age, Sex, etc.)	Percentage of Workers covered*	Minimum or Average Rates of Pay.	Agreed Time, Piece or other Rates of Pay	Agreed Rate of Pay per Hour, Day, Week, etc.	Are Special Allowances or Increases included in the figures given ?	Agreed Rates of Wages or Average Rates of Wages ?		
Coal-mining	Skilled : Coal and quarry hewers (not including haulers). Unskilled : (not including Artisans)	Wages Agreements for the various districts	Official Figures of Bureau of Statistics	5 Districts	On the 1st of every month	Male Workers in highest age group in wages agreement (Above 20 to above 24 years)	99%	For coal hewers Average Rate for normal working hours ; for workers above ground, minimum rate	Piece Rate for underground, time rate for surface workers	Hourly and Weekly Wages for normal hours of work	Gross Wages incl. family allowances for wife and two children up to 14, not incl. coal allowance	Weighted average wages as per wages agreements for full-time workers of the highest age group in Agreement	Normal hours of work	" Wirtschaft und Statistik " published by the Bureau of Statistics and "Reichsarbeitsblatt" published by Ministry of Labour. Also yearly reviews in " Statistischen Jahrbuch für d. Deutsche Reich," published by the Bureau of Statistics
Wood-working	Skilled : Unskilled	National Wages Agreement (including district rates of pay)	do.	25 Centres of Industry	do.	Male workers in highest age group in agreement (Above 22 years)	25%	Average rate of pay	Time Rate	do.	Family allowances not paid	do.	Normal hours (48) Berlin (46)	
Metals	Skilled : Unskilled	Wages Agreements for the various districts	do.	25 Centres of Industry	do.	Male workers in highest age group in agreement (Above 20 to above 25 years)	50%	For skilled workers of average capacity, average rate ; for unskilled workers, minimum rate	For specialists piece rate ; for labourers time rate	do.	Gross wages incl. family allowances for wife and two children up to 14 (where paid)	do.	Normal hours (from 48 to 52 hours)	do.
Building	Skilled : Bricklayers and Joiners. Unskilled : Builders' labourers	National Wages Agreement (including district rates)	do.	34 Centres of Industry	do.	Male workers in highest age group in Agreement (Above 19 years)	25%	Minimum Rate	Time Rate	do.	Family allowances are not paid	do.	Normal hours (46½ to 48 hours)	do.

WAGE RATES IN GERMANY—*continued*

Industry	Branch of Industry or Class of Employment	Basis of Rates of Pay	Authority for Statistics	Extent of Investigation				Description of Figures Supplied					Hours of Work	Titles of Publications
				Localities	Frequency of Investigations	Groups of Workers (Age, sex, etc.)	Percentage of Workers covered*	Minimum or Average Rates of Pay	Agreed Time, Piece or other Rates of Pay	Agreed Rate of Pay per Hour, Day, Week, etc.	Are Special Allowances or Increases included in the Figures given ?	Agreed Rates of Wages or Average Rates of Wages ?		
Chemicals	Skilled : Unskilled	National Agreements	do.	15 Centres of industry	do.	Male workers in highest age group in Agreement (Above 20 to above 22 years)	30%	Minimum Rate	do.	do.	Gross wages incl. family allowances for wife and two children up to 14 years (where paid)	do.	Normal (48 hours)	do.
Textiles	Skilled : Unskilled	Wages Agreements for the various districts	do.	18 Centres of Industry	do.	Male and female workers in highest age group in Agreement (Above 20 to above 25 years)	30%	For skilled workers of average capacity, average rate ; for unskilled workers, minimum rate	For specialists, piece rate ; for labourers, time rate	do.	do.	do.	Normal (48 hours)	do.
Baking, Confectionery	Skilled : Unskilled	do.	do.	18 Centres of Industry	do.	Male workers in highest age group in Agreement (Above 23 years)	30%	Minimum Rate	Time Rate	do.	Gross wages incl. local additions ; family allowances are not paid	do.	do.	do.
Brewing	Skilled : Unskilled	do.	do.	20 Centres of Industry	do.	Male workers in highest age group in Agreement (above 21 years)	35%	do.	do.	do.	Gross wages incl. family allowances and equivalent of allowances in kind, where made	do.	do.	do.

WAGE RATES IN GERMANY—*continued*

Industry	Branch of Industry or Class of Employment	Basis of Rates of Pay	Authority for Statistics	Extent of Investigation				Description of Figures Supplied					Hours of Work	Titles of Publications
				Localities	Frequency of Investigations	Groups of Workers (Age, sex, etc.)	Percentage of Workers covered*	Minimum or Average Rates of Pay	Agreed Time, Piece or other Rates of Pay	Agreed Rate of Pay per Hour, Day, Week, etc.	Are Special Allowances or Increases included in the Figures given ?	Agreed Rates of Wages or Average Rates of Wages ?		
Paper-making	Skilled : Machinists Unskilled : Labourers	do.	do	15 districts	do.	Male workers in highest age group in Agreement (Above 21 years)	75%	do.	do.	do.	Gross wages incl. family allowances for wife and two children up to 14 years (where paid)	do.	do.	do.
Printing	Skilled : Hand Compositors Unskilled	National Agreement	do.	All Categories	do.	Male workers in highest age group in Agreement (Above 24 years)	55%	do.	do.	do.	Family allowances not paid	do.	do.	do.
Cardboard Goods manufacture	Skilled : Unskilled	do.	do.	20 Centres of Industry	do.	Male and female workers in highest age group in Agreement (Above 24 years)	30%	do.	do.	do.	do.	do.	do.	do.
Transport (State Railway)	Skilled : (Wage Group III) Unskilled : (Wage Group VII.)	do.	do.	20 Service Centres (towns)	do.	Male workers in highest age group in wages Agreement (Above 24 years)	25%	do.	do	do.	Gross wages incl. local and family allowances for wife and two children up to 14 years	do.	Normal (51) hours)	do.

*The percentages given below would be considerably higher, if, in place of the number of workers in the towns under investigation, the number of workers were taken in the classes of towns for which the individual towns are representative.

GERMANY: EARNINGS

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Mining	Coal-mining, Monthly	Average figures based on investigation by unions of various groups of workers	Official returns of mine owners compiled in Bureau of Statistics	All principal mining districts	Monthly	Month	Hewers of coal and ore, and workers above ground (latter not including artisans, females and juvenile workers)	300,000 workers	Average earnings per shift (knownas "Leistungslöhne") For underground workers, piece rate wages; for surface workers, time rate wages	Shift or day	Gross wages including family and children's allowances, not including extra pay for extra shifts, value of coal allowance and other extras of a like nature	Average earnings for completed normal working shift	On an average normal working shift for the principal mining districts under investigation	—	"Wirtschaft und Statistik" and "Statistisches Jahrbuch für das Deutsche Reich," published by the Bureau of Statistics and "Reichsarbeitsblatt," published by the Ministry of Labour

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation*	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Mining	Coal-mining, Quarterly	Collieries' pay lists	do	do	Quarterly	Quarter	(1) Underground mine workers in stricter sense of the word, employed in opening up and extraction. Hewers and haulers (2) Other underground workers : hewers employed in repairs, other workers (3) Workers employed above surface not including juveniles and females : (*a*) skilled workers and (*b*) other workers (4) Juvenile maleworkers under 16 (5) Female workers Analysis under above groups, however, only for full time workers, not for workers taken on	About 800,000 full time workers 900,000 workers taken on	For underground workers, piece rate earnings, for workers above surface, time rate earnings	do	Earnings per shift not including, and cash earnings including, any extras for overtime and social allowances, but not including value of coal allowance and other extras of a like nature	Earnings per shift and cash earnings for full-time workers	Per completed shift	—	"Reichsarbeitsblatt" published by the Ministry of Labour and partly "Statistischen Jahrbuch für das Deutsche Reich," published by Bureau of Statistics

*See note on following table

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Group of Workers (Age, Sex, etc.)	Number of workpeople under investigation*	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Mining	Brown Coal-mining	Collieries' pay lists	do	Principal brown coal-mining districts	Quarterly	Quarter	(1) Mine workers in stricter sense of the word in underground and surface workings employed in opening up and extraction ; hewers and haulers (2) Other workers employed underground and in surface workings : hewers employed in repairs ; other workers (3) Workers employed above surface not including juveniles and females : (*a*) skilled workers and (*b*) other workers (4) Juvenile maleworkers under 16 (5) Female workers Analysis under above groups, however, only for full-time workers, not for workers taken on	75,000 full-time workers 82,000 workers taken on	do	do	do	Earnings per shift and cash earnings for full-time workers	Per completed shift	—	"Reichsarbeitsblatt," published by the Ministry of Labour

* See note on following table

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation*	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Mining (Cont'd.)	Ore Mining	Collieries' Pay lists	Official returns of mine owners compiled in Bureau of Statistics	Principal ore mining districts	Quarterly	Quarterly	(1) Underground mine workers in stricter sense employed in opening up and extraction : hewers and haulers. (2) Other underground workers ; hewers engaged in repairs, other workers. (3 Workers employed on surface not including juveniles and females : (*a*) Skilled workers and (*b*) Other workers (4) Juvenile maleworkers under 16 (5) Female workers Analysis under above groups, however, only for full time workers, not for workers taken on	24,000 full time workers. 27,000 workers taken on	For underground workers, piece rate earnings ; for surface workers, time rate earnings	Shift or day	Earnings per shift not including, and cash earnings including any extras for overtime and social allowances, but not including value of coal allowance and other extras of a like nature	Earnings per shift and cash earnings for full time workers	Per completed shift	—	"Reichsarbeitsblatt" published by the Ministry of Labour
	Salt mining	do	do	Principal salt mining districts	do	do	do	9,500 full time workers 11,000 workers taken on	do.	do.	do.	do.	do.	—	do.

*The number of fulltime workers is ascertained by dividing the total number of working shifts completed within the period under investigation, reduced by the number of shifts for overtime, by the number of working days in such period

The number of the average workers taken on is ascertained by dividing the number of working shifts completed within the period under investigation, reduced by the number of shifts for overtime, and increased by the number of shifts lost, by the number of working days in such period

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Woodworking (See also Makers of musical instruments)	Joinering and Cabinet making	Employers' pay lists (Figures supplied for individual workers)	Official figures of Bureau of Statistics in virtue of Law on Wages Statistics of 27.7.22 and the Ordinance dated 14.7.27	1,360 concerns in 130 towns	Every two or three years	March, 1928	Above 22 years, male skilled workers, semi-skilled workers and unskilled workers)	36,000 workers	Time and piece rate earnings for skilled and semi-skilled workers ; time rate earnings for unskilled workers	Hour and week	Average hourly earnings including and not including extra pay for extra hours and overtime, also average weekly gross earnings. Details of total earnings include deductions from wages for taxes (also shown separately) and the workers contribution to National Insurance. Separate details of employers' contributions to National Insurance (not including Accident Insurance)	Amount earned for actual hours of work performed. Separate mention of extra hours or overtime with extra pay	—	Actual hours worked	"Wirtschaft und Statistik," published by the Bureau of Statistics "Reichsarbeitsblatt" published by the Ministry of Labour

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Group of Workers (Age, Sex, etc.)	Number of work-people under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Iron and Steel	Plast furnaces	Employer's pay lists (Figures supplied for individual workers)	do	35 works in 26 towns	do	October 1928	Above 21 years, male : 1 Smelters 2 Other foundry workers	7,500 workers	Time and piece or bonus wages	do.	Average hourly earnings including and not including overtime and family allowances, also average gross weekly earnings. Details of total earningsinclude deductions from wages for taxes (also shown separately) and of employers' contributions to National Insurance	Amount earned for actual hours of work done. Separate mention of extra time or overtime with extra pay	—	do.	do.

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Iron and Steel (*Cont'd.*)	Steel works	Employers' wages books	Official figures of the Bureau of Statistics in virtue of Wages Statistics Law of 27.7.22 and Ordinance dated 14.7.27	35 works in 26 towns	Every 2 or 3 years	October, 1928	Above 21 years, males: 1. Smelters. 2. Other workers in steel works.	11,000 workers	Time and piece or bonus earnings	Hour and week	Average hourly earnings including and not including overtime and family allowances, and average gross weekly earnings. Amount of total earnings include deductions from wages for taxes (also shown separately) and for worker's contribution to National Insurance	Earnings for actual hours worked, separate details of overtime with extra pay	—	Actual hours worked	"Wirtschaft und Statistik," published by the Bureau of Statistics; and "Reichsarbeitsblatt," published by the Ministry of Labour
	Rolling mills, iron works, etc.	do.	do.	do.	do.	do.	Above 21 years. 1. Workers engaged in rolling. 2 Other workers in rolling mills.	21,500 workers	do.	do.	do.	do.	—	do.	do.

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Iron and Steel (*Cont'd*)	Foundries	do.	do.	do.	do.	do.	Above 21 years, male : skilled, semi-skilled and unskilled workers	4,500 workers	do.	do.	do.	do.	—	do.	do.
	Mechanical and Electrical Repair Shops	do.	do.	do.	do.	do.	do.	10,500 workers	do.	do.	do.	do.	—	do.	do.
Heavy Metal Industries	Manufacture of Ironmongery and Hardware	Employers' wages books (details for each worker)	do.	130 works in 20 districts	do.	do.	Above 21 years, male : skilled, semi-skilled and unskilled workers. Above 18 years : female workers	26,500 workers	Time and piece rate earnings	do.	do.	do.	—	do.	do.
	Manufacture of metal goods	do	do.	48 works in 18 districts	do.	do.	do.	15,000 workers	do.	do.	—	do.	—	do.	do.
	Engineering (machine construction)	do.	do.	94 works in 24 districts	do.	do.	do.	68,000 workers	do.	do.	do.	do.	—	do.	do.

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Group of Workers (Age, Sex, etc.)	Number of workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
	Boilermaking	do.	do.	39 works in 17 districts	do.	do.	do.	14,000 workers	do.	do.	do.	do.	—	do.	do.
	Engineering (iron)	do.	do.	31 works in 15 districts	do.	do.	do.	6,000 workers	do.	do.	do.	do.	—	do.	do.
	Railway waggon building	do.	do.	13 works in 12 districts	do.	do.	do.	9,500 workers	do.	do.	do.	do.	—	do.	do.
	Electrical engineering	do.	do.	24 works in 12 districts	do.	do.	do.	87,000 workers	do.	do.	do.	do.	—	do.	do.
	Opticians, etc.	do.	do.	22 works in 12 districts	do.	do.	do.	17,500 workers	do.	do.	do.	do.	—	do.	do.
	Shipbuilding	do.	do.	9 works in 7 districts	do.	October, 1928 and further investigation in January, 1929 as a result of wages dispute	do.	9,000 workers	do.	do.	do.	do.	—	do.	do.
	Vehicle and aeroplane construction	do.	do.	28 works in 44 districts	do.	October, 1928	do.	28,500 workers	do.	do.	do.	do.	—	do.	do.

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
Building	Building above and below ground, construction in concrete	Employer's wages books (details for each worker)	Official figures of the Bureau of Statistics in virtue of Wages Statistics Law of 27.7.22 and Ordinance dated 14.7.27	Firms in localities	Every 2 or 3 years	August, 1929	Above 21 years, male : masons, carpenters, skilled cement workers, cement workers, concrete workers, builders' labourers and workers below ground.	About 350,000 workers	Time and piece rate wages	Hour and day	Average hourly earnings including and not including extras for extra hours and overtime and other extras as per wages agreement (e.g., extra pay for work under difficult conditions) and average gross weekly earnings. Details of total earnings include deductions from wages for taxes (also mentioned separately) and worker's contribution to National Insurance	Earnings for actual hours worked. Separate details of extra hours and overtime with extra pay	—	Actual hours worked	"Wirtschaft und Statistik," published by the Bureau of Statistics, and "Reichsarbeitsblatt," published by the Ministry of Labour

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
	Painting	do.	do	do.	do.	do.	Above 19-20 years, and above 20 years, male skilled painters		do.	do.	do.	do.	—	do.	do.
	Slating	do.	do.	do.	do.	do.	Above 19 years, male skilled slaters		do.	do.	do.	do.	—	do.	do.
Chemicals	Dye making	do.	do.	21 works in 17 towns	do.	June, 1928	Above 21 male workers, above 20 female workers, Above 21 skilled workers	21,000 workers	Time, bonus and piece rate wages	Hour and week	Average hourly earnings including and not including extras for extrahours, overtime, and family allowance; and average gross weekly earnings. Details of total earningsinclude deductions from wages for taxes (also mentioned separately) and of workers contribution to National Insurance. Separate details of employers' contribution to National Insurance (not including Accident insurance)	do.	—	do.	do.

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Work-people under investigation	Time or Piece Rates	Unit of Time	Arespecial Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
	Nitrogen and artificial manures	do.	do.	12 works in 10 towns	do.	do.	do.	25,500 workers	do.	do.	do.	do.	—	do.	do.
	Tar products	do.	do.	7 works in 7 towns	do.	do.	do.	3,000 workers	do.	do.	do.	do.	—	do.	do.
	Photographic Plates, etc.	do.	do.	8 works in 5 towns	do.	do.	do.	4,000 workers	do.	do.	do.	do.	—	do.	do.
	Drugs	do.	do.	32 works in 21 towns	do.	do.	do.	13,000 workers	do.	do.	do.	do.	—	do.	do.
	Volatile Oils	do.	do.	8 works in 6 towns	do.	do.	do.	1,600 workers	do.	do.	do.	do.	—	do.	do.
	Artificial silk	do.	do.	10 works in 9 towns	do.	do.	do.	11,100 workers	do.	do.	do.	do.	—	do.	do.
	Explosives	do.	do.	12 works in 12 towns	do.	do	do.	7,000 workers	do.	do.	do.	do.	—	do.	do.

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Textile industry	Cotton	Employer's wages books (details for each worker)	Official figures of Bureau of Statistics in virtue of Wages Statistics Law of 27.7.22 and Ordinance dated 14.7.27.	64 mills in 7 towns	Every 2 or 3 years	September, 1927	Male and female spinners and weavers; male and female unskilled workers above 20 years	16,500 workers	Piece rate wages for men and women spinners and weavers; time rates for male and female unskilled workers	Hour and week	Average hourly earnings including and not including extras for extra hours overtime and family allowance and average gross weekly earnings. Details of total earnings include deductions from wages for taxes (also mentioned separately) and of workers' contribution to National Insurance. Separate details of employers' contribution to National Insurance (not including accident insurance)	Earnings for actual hours worked. Separate details of extra hours and overtime with extra pay	—	Actual hours worked	"Wirtschaft und Statistik," published by the Bureau of Statistics, and "Reichsarbeitsblatt," published by Ministry of Labour

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
	Worsted spinning	do.	do.	6 mills in 4 towns	do.	do.	Male and female spinners ; male and female unskilled workers above 20 years	2,000 workers	Piece rates for men and women spinners, time rates for male and female unskilled workers	do.	do.	do.	—	do.	do.
	Woollen spinning	do.	do.	43 mills in 3 towns	do.	do.	do.	600 workers	do.	do.	do.	do.	—	do.	do.
	Cloth weaving	do.	do.	84 mills in 4 towns	do.	do.	Male and female weavers ; male and female unskilled workers above 20 years	9,000 workers	Piece rates for male and female weavers ; time rates for male andfemale unskilled workers	do.	do.	do.	—	do.	do.
	Linen weaving	do.	do.	13 mills in 2 towns	do.	do.	Female spinners ; male and female weavers ; male and female unskilled workers above 20 years	2,300 workers	Piece rates for female spinners and male andfemale weavers ; time rates for male andfemale unskilled workers	do.	do.	do.	—	do.	do.
	Ribbon weaving	do.	do.	25 mills in 1 town	do.	do.	Male and female weavers ; unskilled male and female workers above 20 years	1,600 workers	Piece rates for male andfemale weavers ; time rates for male andfemale unskilled workers	do.	do.	do.	—	do.	do.

GERMANY : EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full working time and actual time worked ?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Group of Workers (Age, Sex, etc.)	Number of workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied ?		Normal Hours of Work	Actual Hours of Work	
	Plain stocking manufacture	do.	do.	13 mills in 1 town	do.	do.	Male and female stocking workers, unskilled male and female workers above 20 years	800 workers	Piece rates for male and female stocking workers ; time rate wages for male and female unskilled workers	do.	do.	do.	—	do.	do.
	Stockinette works	do.	do.	15 mills in 2 towns	do.	do.	do.	900 workers	do.	do.	do.	do.	—	do.	do.
	Lace manufacture	do.	do.	6 mills in 1 town	do.	do.	Weavers and winders ; unskilled workers, male and female, above 20 years	400 workers	Piece rates for weavers and female winders ; time rates for unskilled male and female workers	do.	do.	do.	—	do.	do.
	Velvet weaving	do.	do.	7 mills in 1 town	do.	do.	Male and female weavers ; male and female unskilled workers above 20 years	1,000 workers	Piece rates for male and female weavers ; time rates for unskilled male and female workers	do.	do.	do.	—	do.	do.
	Silk weaving	do.	do.	15 mills in 5 towns	do.	do.	do.	1,700 workers	do.	do.	do.	do.	—	do.	do.

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Boots and shoes	Manufacture of leather boots and shoes, slippers, felt and cloth slippers	Employers' wages books (details for each worker)	Official figures of Bureau of Statistics in virtue of Wages Statistics Law of 27.7.22 and Ordinance dated 14.7.27	438 mills in 181 towns	Every 2 or 3 years	March 1929	Above 16-18 above 18-21 and above 21, male and female boot and shoe operatives	65,000 workers	Time and piece rate earnings	Hour and week	Average hourly earnings including and not including extras for overtime; also average gross weekly earnings Details of total earnings including deductions for taxes (also shown separately) and of workers contribution to National Insurance Separate details of employer's contribution to National Insurance (not including accident insurance)	Earnings for actual hours worked Separate details for extra hours and over-time with extra pay	—	Actual hours worked	"Wirtschaft und Statistik," published by the Bureau of Statistics and "Reichsarbeitsblatt," published by Ministry of Labour

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Printing	Printing	do.	do.	982 mills in 400 towns	do.	June 1929	Up to 21, 21-24 and above 24 years, hand and machine compositors on time and piece rates; up to 21, 21-24 and above 24 years printers on time rate; above 24 years rotary printers and sterotypers on time rate; above 19 to 21, 21-24 and above 24 years male unskilled workers; bove 17-19, a19-21 and above 21 years, unskilled female workers and female feeders on time rate	46,000 workers	do.	do.	do.	do.	—	do.	do.

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Lithography	Lithography	do.	do.	do.	do.	do.	Unskilled lithographic workers in plain and offset printing in first year also up to 24 and above 24 years, also lithographic assistants male unskilled workers on time rates above 17-19, 19-21, 21-24 and above 24 years; above 17-19 19-21, and above 21 years female feeders and other unskilled female workers	25,000 workers	Time rate wages	do.	do.	do.	—	do.	do.

GERMANY: EARNINGS—*continued*

Industry	Branch of Industry	Basis of Information	Authority for Information	Extent of Investigation					Type of Remuneration			Is a difference drawn between full time working and actual time worked?	Hours of Work		Titles of Publications
				Localities	Frequency	Period Investigated	Groups of Workers (Age, Sex, etc.)	Number of Workpeople under investigation	Time or Piece Rates	Unit of Time	Are special Allowances or extra pay included in figures supplied?		Normal Hours of Work	Actual Hours of Work	
Musical Instrument making	Musical instrument making	do.	do.	121mills in 41 towns	do.	September 1927	Male and female skilled workers above 22 years; male and female semi-skilled workers above 22 years. Male unskilled workers above 22 years (also male skilled above 20 years, male unskilled workers above 18 years and female skilled workers)	10,000 workers	Time and piece rate wages for male and female skilled and semi-skilled workers; time rates for male unskilled workers	do.	Average hourly wages including and not including extras for extra hours and overtime, and average gross weekly wages. Details of total wages including deductions for taxes (also shown separately) and of workers' contribution to national insurance. Separate details of employers' contribution to National Insurance (exclusive of Accident insurance)	do.	—	do.	do

ITALY

Regular enquiries, both into wage rates fixed by collective agreements and average earnings are to be found in Italy.

WAGE RATES

I. THE MILAN ENQUIRY.

THE municipality of Milan has collected, each month since 1924, wage rates fixed by collective agreements in certain industries and occupations, viz., Building (masons, brickmakers, carpenters, joiners, plumbers, painters, labourers); Engineering (fitters, moulders, modellers, turners, unskilled workers); Furniture (cabinet makers, unskilled workers); Printing (hand and machine compositors, typographers, bookbinders, unskilled workers); Chemicals (skilled workers). For each occupation the wage quoted is that fixed by the operating collective agreement, usually the hourly rate. The daily wage, including the cost of living bonus, and the weekly wage are also calculated upon the basis of a normal working day of eight hours and a normal week of 48 hours. Information is also given of the rates for the first two hours of overtime. The number of workers covered by these rates is not known and, consequently, it is not possible to calculate weighted averages. The relatively small area covered by this enquiry makes it impossible to utilize these rates as an index of rates for the whole of Italy.

The results are published each month in the publication, "Milano." They are also sent to the I.L.O., which publishes them in the "International Labour Review," and embodies them in its international comparisons of real wages.

Very detailed information dating from before the war is published in the Statistical Annual of the City of Milan for the following industries and occupations in each industry: (unfortunately the last annual only brings the material up to 1925): Printing and Bookbinding (from 1907); Building and Roads (from 1887); Woodworking Industry (from 1901); Engineering (from 1913); Food (from 1911); Catering Trades (from 1913); Chemicals (from 1920); Agriculture (from 1901).

Indices of wages in Milan are published, beginning with 1919, in the volume "L'Economia italiana dal 1919 al 1929," published by the "Comitato degli indici del movimento economico italiano." The diagrams based on this material are published quarterly by the above Committee in the Review "Indici del movimento economico italiano."

II. THE FLORENCE ENQUIRY.

Florence has undertaken since 1928 a monthly enquiry similar to that made in Milan. It covers the daily and weekly wages, as determined by collective agreements, operating in Florence for the same industries as those comprised in the Milan enquiry with the exception of Chemicals.

This data is published each month in the "Bollettino mensile statistico e amministrativo del Comune di Firenze."

III. THE VENICE ENQUIRY.

Venice has also, since 1921, collected data of hourly, daily and weekly rates of wages determined by collective agreements in the province of Venice. The rates are obtained for the following occupations: Printing (compositors, linotypists, printers, lithographers, bookbinders, machine-workers); Painting (framers and stainers); Dredging—monthly wages—(dredger workers, tugmen, dredge and tug engineers, masters stokers, sailors, assistants and boys); Masons (bricklayers, apprentices, labourers, navvies); Stone-cutters (stone-cutters, carvers, flint-cutters); Metal Industry (workers, juveniles, apprentices); Electricians and Hydraulic Workers (workers, juveniles, apprentices); Carpenters and Joiners (highly skilled, skilled, semi-skilled, apprentices).

This data is given in the "Rivista di Venezia."

IV. HALF-YEARLY INVESTIGATION IN SEVEN TOWNS BY THE CENTRAL INSTITUTE OF STATISTICS.

Since September, 1929, the Central Institute of Statistics has published, in the "Bollettino dei prezzi," data relating to wage rates, in a number of industries and occupations suggested by the I.L.O., for the seven principal towns of the Kingdom: Turin, Genoa, Brescia, Milan, Trieste, Bologna and Rome.

The rates, in which are included cost of living allowances, are collected every six months by the statistical bureaus in these towns for the following industries and occupations: Building (bricklayers, masons, carpenters, joiners, plumbers, painters, iron workers, concrete workers, labourers); Engineering (fitters, iron-moulders, turners, pattern makers, labourers); Furniture (cabinet makers, upholsterers, polishers); Printing and Binding (hand and machine compositors, machine tenders, binders, labourers); Electrical Installation (assemblers); Electrical Distribution (electrical fitters, labourers); Transport (bus and tram conductors, drivers of automobiles, vans and trucks, carters, porters, waymen); Food Industry (bakers); Skilled and unskilled workers of Local Authorities.

For each of these occupations the hourly rate is given, the weekly rate being calculated upon the basis of the weekly hours of work laid down in the collective agreement, usually forty-eight. This data is sent to the I.L.O. and published in the "International Labour Review" as part of the data bearing upon the international comparison of real wages.

V. ENQUIRY OF THE CENTRAL INSTITUTE OF STATISTICS INTO WAGES OF AGRICULTURAL WORKERS.

Since 1928 information has also been collected of the hourly wages of day labourers (braccianti or avventizi) who are engaged for specific periods, according to circumstances, but are not tied definitely to any particular employer. Day labourers receive an hourly or a daily wage, usually in money, but with some payment in kind.

Wage statistics of agricultural workers differentiate between wages for normal work and wages for special work (such as vine cultivation, etc.).

The " Cattedre ambulanti di agricoltura " gives the wages actually paid each month (which may be either above or below the rates established by collective agreements) in all the provinces and this information has been published from January, 1930, in the " Bollettino mensile di statistica agraria e forestale " of the Central Institute of Statistics.

For each Province, the maximum and minimum wage is given and subdivisions made for men, women and juveniles and for the different agricultural districts (mountain, hill or plain).

The results of this enquiry are also published, in summary form, in the " Bollettino dei prezzi " of the Central Institute of Statistics.

VI. CONTINUOUS INVESTIGATION OF WAGE RATES IN ALL INDUSTRIES BY THE FASCISTI CONFEDERATION OF INDUSTRY.

The growth of associations and collective agreements in all branches of national economic life, and their publication by the Prefects in the " Fogli degli Annunzi Legali," or by the Ministry of Corporations in the " Bollettino Ufficiale del Ministero delle Corporazioni," has made available the wage rates established by collective agreements among workers in commerce, agriculture and industry in each province of the Kingdom. The preparation of complete statistics of wage rates therefore becomes a possibility.

In this connection the Fascisti Confederation of Industry has collected through examination of each agreement, a large amount of material concerning wage rates. For each branch of industry it is possible to obtain hourly, daily or weekly rates according to age and sex and supplementary information relating to cost of living allowances, overtime rates, bonuses, piece rates, etc.

Since most of the agreements relate to the province, detailed tables have been prepared for each locality and occupational group and are kept up to date. The comparison of rates, however, for the same occupations in different localities might present serious difficulties since the occupations are often described differently in the different areas.

These statistics are certainly the most complete to be found in Italy but up to the moment they have not been published. For some branches of industry (building, tanning, wool, cotton), however, the rates are published in the publication of the employers' associations. For the metal and mechanical trades, data relating to rates and sometimes also to earnings are published in " L'Industria Lombarda," the review of the Consorzio Meccanico e Metallurgico di Milano.

VII. ENQUIRY OF THE MINISTRY OF PUBLIC WORKS.

The Ministry of Public Works collects, from accounts, wage rates in operation in different areas among workers in branches of such industries as Building, Bridges and Public Works. The occupations covered in this enquiry are as follows : head masons, masons, carpenters, blacksmiths, joiners, sappers, stone dressers, quarrymen, concrete workers, labourers, asphalt workers, pavers, flint

cutters, assistants, women, apprentices, varnishers, painters, navvies, excavators, carters, etc.

The rates collected are hourly with subdivisions according to occupation, sex and age. In some cases hourly rates adopted in the principal towns of the provinces are given, in others a distinction is made between these rates and those to be found in other districts of the province. A comparison of the rates in different provinces is, however, hazardous, due to differences in the methods of collection and presentation of the material.

These rates are published each month in the " Bollettino Statistico del Ministero dei Lavori Pubblici e dell'Azienda Autonoma statale della strada."

EARNINGS

Earning enquiries are based on the payments recorded in the wage books which factories are compelled to keep in accordance with the laws relating to Accident and Social Insurance. The wage book must contain the number of normal and extra hours worked each day and the wages paid in money or in kind, the cost of living allowances, premiums, bonuses, etc. Enquiries into earnings are made by the Governatorato de Rome, the provincial economic council of Brescia, the Fascisti Confederation of Industry and the Ministry of Corporations.

I. ENQUIRY OF THE " GOVERNATORATO " OF ROME.

The statistical bureau of the Governatorato has obtained quarterly, since 1926, data on earnings which are forwarded to the I.L.O., and published in the " International Labour Review." The industries and occupations covered by the enquiry are as follows: Building (masons, carpenters, smiths, bridge workers, assistants, apprentices, labourers); Engineering (fitters, turners, modellers, apprentices, labourers, plumbers, chimney constructors, electricians); Furniture (cabinet makers, joiners); Printing (hand and machine compositors, monotypists, printers, porters).

The collection of wage material (including the cost of living allowances) is made from a constant group of firms in the industries mentioned. The wages collected are hourly but the weekly wage is also calculated on the basis of forty-eight hours' work per week. The average of the wages for all the firms is then obtained by using a theoretical weight for each type of firm based on the number of workers engaged.

Since 1929 the results have been published quarterly in the " Capitolium," the review of the " Governatorato " of Rome.

II. ENQUIRY OF THE PROVINCIAL ECONOMIC COUNCIL OF BRESCIA.

This council has gathered quarterly since 1919 data of the earnings of those employed in all the principal branches of the industry in the neighbourhood (metals, textiles, chemicals, mines and quarries, building, woodworking, food, miscellaneous). The methods adopted are similar to those used in the enquiry in Rome.

Charts based on this material are published in the "Indici del movimento economico italiano," and the corresponding figures in the volume "L'Economia italiana dal 1919 al 1929."

III. TWO-MONTHLY ENQUIRY INTO THE MOVEMENTS OF AVERAGE HOURLY EARNINGS OF THE FASCISTI FEDERATION OF INDUSTRY.

The Fascisti Federation of Industry has, since October, 1927, collected wage statistics in order to determine the actual hourly earnings of those in industry. The aim of the enquiry is to record fluctuations rather than the actual level of earnings. From October, 1927, to April, 1929, the enquiry was made at the end of each month regarding wages paid within that month. Since April, 1929, the information has been asked for at the end of each two months for these months.

The enquiry brings together, through an examination of the records of wages paid, the total payments for each industry and the number of normal and overtime hours worked. This data is asked for without distinction of occupation, age or sex. By comparing total payments and hours worked average hourly earnings for those in the whole of Italian industry can be determined fairly exactly.

Separate details are given for each area in the Kingdom and for eleven industrial groups: agriculture and food; mining and quarrying; building; building materials; engineering and metal trades; textile and clothing; chemicals; paper and printing; wood; public utilities; miscellaneous.

The enquiry extends, therefore, over a number of very large industrial categories each of which covers numerous groups which may differ widely in their nature or in their relative importance in the national economy. Such differences affect the value of the statistics as a measurement of the actual level of earnings but they do not seriously impair their value as a record of fluctuations in the level from time to time. For the same reason, the average hourly earnings are based entirely upon payments for normal and overtime hours. Payments, in the form of special bonuses, by the employer are not included.

In theory, the enquiry should cover all the firms in Italy but, in effect, it covers 30,000 firms which account for about 60 per cent. of the workers in the whole of industry. Generally speaking, the enquiry has given satisfactory results. However, since the earnings for normal and overtime hours are grouped together and payments for the latter are at higher rates than for the former, any change in overtime hours may give the impression of a change in hourly earnings which actually has not occurred.

The statistics are published in the "Bollettino dei Prezzi" of the Central Institute of Statistics, and in the "Bollettino di Notizie Economiche" of the Associazione delle Società per Azioni.

IV. ENQUIRY OF THE FASCISTI FEDERATION OF INDUSTRY INTO THE EARNINGS OF WORKERS IN THE PROVINCE OF MILAN.

An enquiry into the earnings of workers in a large number of industries in the town and province of Milan is now being carried through. The purpose

is to render possible the very important comparison between earnings and rates. The industrial categories comprised are as follows: Marble, Printing, Plain Glass, Plate Glass and Crystal, Porcelain Goods; Heavy and Light Earthenware; Abrasive Materials, Men's Linen; Women's Dress, Men's Tailoring, Millers, Rice, Vermicelli, Wood, Cardboard, Paper, Cotton Spinning and Weaving, Wool, Silk Weaving, Artificial Textile Fibres, Building, Cement Working, Ceiling Workers, Varnishers, Pavers, Asphalt Workers, Gravel-Pit Workers, Engineers.

For all these industries and for each occupational group within each industry it is intended to obtain the number of workers, the normal hours worked, the total wages paid, including the cost of living allowance, bonuses, piece work payments, but not including payment for overtime. In the presentation of this data weighted averages will be constructed in order to obtain for each occupational group the average hourly or daily earnings.

V. ENQUIRIES OF THE MINISTRY OF CORPORATIONS.

The Ministry of Corporations undertakes three enquiries:

(*a*) *A Half-Yearly Enquiry.* Since March, 1928, the Ministry of Corporations has carried through an enquiry every six months, in order to ascertain the average hourly earnings of all workers in the important industries of the country from which statistics of employment, hours of labour and machine activity are obtained monthly. The enquiry covers the 24 following groups: silk spinning and weaving; weaving of artificial silk, cotton, linen, hemp, jute; stockings, hats, hosiery; metals; automobiles, railway construction and repair; machine and electrical construction; specialised mechanical trades; miscellaneous mechanical trades; naval shipyards; rubber, phosphates, tanneries; paper, etc.

The number of firms included within the enquiry is about 5,000 with 870,000 workpeople. The information is drawn from the wage books which are subject to control by the labour inspectors. The statistics give, for each industrial group, the total wages paid for normal and overtime hours and the total normal and overtime hours worked. Division gives the average hourly earnings without differentiation according to sex, age, or occupation.

As with the enquiry undertaken by the Fascisti Federation of Industry, this enquiry seeks to determine movements in, rather than the level of, wages.

The results are published in the "Bollettino mensile di statistica" of the Central Institute of Statistics, and in the "Bollettino de lavoro e della previdenza sociale" of the Ministry of Corporations.

(*b*) *Enquiry carried through at longer intervals.* In 1923 the Ministry of Corporations carried through a census of wages in the woollen, cotton, silk and metal industries but employed different methods in the different industries.

A second investigation was carried out in May and August, 1925, which was more comprehensive (4,485 firms with 811,200 workers) and in which uniform statistical methods were employed in all industries. The comparability between different industries was, in consequence, much greater than in the previous

enquiry. The aim of the enquiry was to determine the average hourly and daily earnings actually paid (including and excluding overtime) for a number of industries and groups of workers. The earnings were abstracted from the wage books of firms. The investigation covered all firms with a minimum number of workers (from 6 to 20). It would not have been desirable to restrict the enquiry to special classes of firms since it is very difficult in Italy to pick out firms of this kind because of the disparity between the earnings of workers even in the same industry in the same locality.

For each industrial group earnings were obtained according to sex, age, occupation, etc. This enquiry is of particular interest because of the comparability of the data. The results were published in the " Bollettino del lavoro e della previdenza sociale," of the Ministry of Corporations. Actually the Ministry has another enquiry in progress into earnings of certain occupational groups and, in this, roughly the same processes have been followed as in the 1925 investigation.

VI. ANNUAL ENQUIRY INTO WAGES OF WORKPEOPLE ENGAGED IN MINES, QUARRIES, AND METAL AND MINERAL WORKING CONCERNS.

This investigation, begun before the war, relates to workers employed in mines, quarries, peat-pits, etc. The information is collected each year in the mining district by the Inspectors of the Royal Mines Corps who receive data concerning wages paid within a given period to various groups of workpeople and the corresponding periods of employment. It thus becomes possible to ascertain for each mining district the average daily wage paid during the year in mines, quarries, etc. The earnings differentiate between different kinds of work, and the sex and age of the employee. At the same time the average daily earnings over the year for workers engaged in concerns working in minerals and metals are obtained grouped by the type of production.

The results of this investigation are published in the " Relazione sul Servizi Minerario," issued each year also by the Minister of Corporations.

VII. ENQUIRY OF THE NATIONAL ACCIDENT INSURANCE FUND.

Since 1899 the National Accident Insurance Fund has received the figures of wages of workers who have been injured by abstracting them from the reports of accidents submitted by employers. Upon the basis of this data averages of daily and yearly wages are calculated without any differentiation being made according to industries or occupations but with a classification following the localities and regions of the Fund.

The average wage thus calculated only applies to injured workers and naturally the average is influenced by the wages paid in the occupations in which the risk is greatest. It must also be borne in mind that only a part of the workers engaged in industry are insured with the National Accident Insurance Fund.

The results of this investigation are published in the annual reports of the National Accident Insurance Fund.

UNITED KINGDOM

RATES OF WAGES

NOTE: The particulars of British statistics have been compiled with reference to the heads in the tabular statement into which the German and American particulars have been thrown. The tabular form has not, however, been followed throughout, since the same particulars are available about most of the industries and occupations reported, and it was considered clearer and more economical of space to give, first, the particulars and then the industries and occupations for which they are available.

I. INFORMATION AVAILABLE IN REPORT ON STANDARD TIME RATES OF WAGES.

Particulars as described below are available in the Report on Standard Time Rates of Wages and Hours of Labour for the industries shown in the appended list:

(2) (*a*) *Origin of rate :* Collective Agreements, Arbitration Awards or Trade Union minimum.

(*b*) *Source of Data :* Collected by Ministry of Labour from organisation of employers and workpeople.

(3) (*a*) *Territorial Scope :* Usually a number of towns, except in cases where agreements apply uniformly to wider areas.

(*b*) *Frequency of Collection :* The Ministry of Labour endeavours to obtain a continuous record of movements in the wage rates. Particulars of all changes reported are published as they occur in the "Ministry of Labour Gazette," together with the rates after change, where practicable.

(*c*) *Classes of Workpeople :* Usually typical occupations of skilled and unskilled workers, with separate details at different ages where available.

(*d*) *Proportion of Workpeople Covered :* Information on this point is not available.

(4) (*a*) *Minimum or Standard Rates :* The rates quoted are the standard rates embodied in collective agreements, etc., or, in the absence of such agreements, those recognised by the Employers' Associations and/or the Trade Unions concerned. Such standard or recognised rates are in practice usually minima and in individual cases higher rates may be paid.

(*b*) *Hourly, Daily, etc. :* Usually hourly or weekly, but in a few cases daily or shift.

(*c*) *Supplementary Payments :* In the case of agriculture the minimum rates in England and Wales include the value of allowances in kind. In other cases no information as to allowances is available, though it is known that in coal mining certain allowances are granted and in railway service there are certain privileges, such as cheap fares, and uniform provided.

(*d*) *Actual Average Rates :* The rates quoted are actual.

(5) *Hours of Labour :* The hours quoted are normal.

List of Industries for which particulars as to Rates of Wages and Hours of Labour are given in the Report on Standard Time Rates of Wages and Hours of Labour.

AGRICULTURE :	Minimum Rates of Wages fixed by the Agricultural Wages Board for ordinary labourers for all the counties in England and Wales.
MINING AND QUARRYING :	Coal Mining (Labourers only—principal coalfields). Other Mining and Quarrying (various occupations—principal districts).
WOODWORKING :	Vehicle Building (skilled occupations—certain towns). Packing Case making (various occupations—certain towns). Coopering (skilled men—certain towns). Sawmilling (various occupations—certain towns).
FURNITURE :	Skilled occupations (certain towns).
METAL :	Iron and steel smelting and rolling (labourers only—principal districts). Lead smelting (labourers only—principal districts). Engineering (skilled and unskilled occupations—certain towns). Shipbuilding (skilled and unskilled occupations—certain towns). Boilermaking (skilled and unskilled occupations—certain towns). Ironfounding (skilled and unskilled occupations—certain towns). Farriery (skilled occupations—certain towns). Railway Carriage and Wagon Building and Repairing (skilled occupations—certain towns). Heating and Domestic Engineering (pipe fitters—certain towns). Electric Cable Making (skilled and unskilled occupations and females—principal districts). Brass Working (skilled occupations—Birmingham and Yorks.). Lock, Latch and Key (skilled occupations—Midlands). Gold,Silver,etc.(skilled occupations—London, Sheffield and Birmingham). Cutlery (skilled occupations—Sheffield). Needle and Fish-Hook (various occupations—Midlands). Harness Furniture (skilled occupations—Walsall). Pen making (various occupations—Midlands). Bedstead (various occupations—Midlands). Pen Making (various occupations—Midlands). Wire Working (various occupations—certain Midlands districts). Railway Shops (various occupations).
BRICK, EARTHENWARE GLASS AND CHEMICAL :	Brick Making (various occupations—principal districts). Pottery (various occupations—male and female). Glass (certain occupations) (very little information). Heavy Chemical (labourers only—principal districts). Drug and Fine Chemical (various occupations, male and female, all districts). Metal Making (various occupations, male and female, all districts). Paint, Colour and Varnish (various occupations, male and female, all districts). Soap and Candle (various occupations, male and female, all districts). Cement (labourers only—certain districts).
BUILDINGS, ETC. :	Building* (skilled and unskilled occupations—most towns). Civil Engineering Construction (skilled and unskilled occupations—various districts, defined but not specified). Electrical Installation (skilled men—certain towns).
GAS, ELECTRICITY, WATER :	Electricity (certain occupation—selected towns). Water (certain occupations—selected towns).
TEXTILES :	Wool (certain occupations, male and female—principal districts). Silk (certain occupations, male and female—principal districts). Lace (certain occupations, male and female—principal districts). Linen and Jute (certain occupations, male and female—principal districts). Dyeing, Bleaching, etc. (certain occupations, male and female—principal districts).

* In these cases rates for selected occupations and towns are also given in the Abstract of Labour Statistics.

TEXTILES :	Hosiery (certain occupations—Scotland). Making up and Packing (certain occupations—Manchester).
CLOTHING :	Boot and Shoe* (skilled males and females—all districts). Glove Making (certain occupations—principal districts). Dyeing and Dry Cleaning (certain occupations—principal districts).
LEATHER, ETC. :	Tanning (skilled, semi-skilled and unskilled workers—principal districts). Saddlery (certain occupations—various towns).
FOOD, DRINK, ETC. :	Bakery* (certain occupations—various towns). Flour Milling* (skilled and unskilled workers and females—all districts). Brewing (labourers and transport workers—principal districts).
PAPER, PRINTING, ETC. :	Paper Making* (various occupations—all districts). Wallpaper Making (various occupations, male and female—all districts). Printing* (all principal occupations, male and female—all districts). Journalists (all districts).
TRANSPORT :	Railways* (principal grades of traffic workers—all districts). Dock Labour* (labourers—all ports). Carting* (lorry drivers—certain towns). Shipping* (principal ratings). Furniture Removing (various occupations—all districts). Tramways* (drivers, conductors, and cleaners—certain towns).
COMMERCE, ETC. :	Shop Assistants, etc. (employees of co-operative societies). Warehousing (certain occupations—in a few towns).
PUBLIC ADMINISTRATION :	Local Authority Services* (unskilled workers—certain towns). Post Office (certain occupations—all districts). Police* (sergeants and constables—all districts).

*In these cases rates for selected occupations and towns are also given in the Abstract of Labour Statistics.

II. INFORMATION AVAILABLE IN TRADE BOARD ORDERS.

In the following trades statutory minimum rates of wages have been fixed under the Trade Boards Acts. These rates are of general application as minima but information is not available as to how far they are exceeded in practice. In some cases a general minimum rate only is fixed for the trade (for males and females separately), but in others differential rates are fixed for certain occupations. The rates are hourly rates and the hours beyond which overtime rates are payable are specified. A summary of the general minimum rates is given in the Report on Standard Time Rates of Wages and in the Abstract of Labour Statistics.

Aerated Water
Boot and floor. polish.
Boot and shoe repairing.
Brush and broom.
Button.
Chain.
Coffin furniture and cerement making.
Corset.
Cotton waste reclamation.
Dressmaking and women's light clothing.
Flax and hemp.
Fur.
General waste reclamation.
Hair, bass and fibre.
Hat, cap and millinery.
Hollow-ware.
Jute.
Lace finishing.
Laundry.
Linen and cotton handkerchiefs and household and linen piece goods.
Made-up textiles.
Milk distribution.
Ostrich and fancy feather and artificial flower.
Paper bag.
Paper box.
Perambulator and invalid carriage.
Pin, hook and eye and snap fastener.
Ready-made and wholesale bespoke tailoring.
Retail bespoke tailoring.
Rope, twine and net.
Sack and bag.
Shirtmaking.
Stamped or pressed metalware.
Sugar confectionery and food preserving.
Tin box.
Tobacco.
Toy.
Wholesale mantle and costume.

III. INFORMATION AS TO AVERAGE TIME RATES OF WAGES.

In the Abstract of Labour Statistics, and at irregular intervals in the "Ministry of Labour Gazette," particulars are published of the averages of the weekly time rates of wages for certain occupations in selected large towns. The occupations covered by these averages are as follows:

AGRICULTURE, ETC.:	Agriculture—Ordinary labourers in England and Wales.
WOODWORKING:	Furniture—Cabinet makers. Upholsterers. French Polishers.
METAL:	Engineering—Fitters and turners. Patternmakers. Ironmoulders. Labourers. Shipbuilding—Shipwrights. Ship Joiners. Labourers.
BUILDINGS, ETC.:	Building—Bricklayers. Masons. Carpenters and joiners. Plumbers. Plasterers. Painters. Labourers. Electrical Installation—Wiremen.
CLOTHING:	Boot and Shoe—Men. Women.
FOOD, ETC.:	Baking—Table Hand.
PAPER, PRINTING, ETC.:	Printing, etc.—Hand Compositors (book and job). Bookbinders and machine rulers.
TRANSPORT:	Railway Service—Engine Drivers. Goods Porters. Passenger Porters. Permanent Way Labourers. Permanent Way Gangers. Tramways—Drivers. Conductors. Road Transport—One-horse Drivers. Shipping—Ableseamen. Firemen. Dock Labour—General Cargo Workers.
PUBLIC ADMINISTRATION:	Local Authorities—Labourers.

IV. OTHER INFORMATION.

Certain other available information as to rates of wages is summarised in the appended table.

EARNINGS

I. INFORMATION AVAILABLE FROM 1924 ENQUIRY BY THE MINISTRY OF LABOUR.

Particulars as described below are available in the issues of the "Ministry of Labour Gazette," for June, 1926, to July, 1927, as to the results of the Enquiry into Earnings and Hours of Labour undertaken by the Ministry of Labour for four selected weeks in 1924. A somewhat similar enquiry has been made in

regard to one week in October, 1928, and the results are at present (February, 1929) in course of preparation.

Using the headings of the table already included the following show the nature of this material:

(2) (*a*) *Origin of Data :* Total wages bill of individual firms.
(*b*) *Source of Data :* Collected by Ministry of Labour from firms.

(3) (*a*) *Territoriality :* Great Britain and Northern Ireland.
(*b*) *Frequency :* Irregular (see above).
(*c*) *Periods :* Four selected weeks (in January, April, July and October).
(*d*) *Classes of Workers :* Only distinction made is between males and females.
(*e*) *Proportion Covered :* Not known, but fairly high.

(4) (*a*) *Time and Piece :* No distinction made between time and piece-work earnings.
(*b*) *Time Unit :* Weekly and Hourly.
(*c*) *Allowances :* Not known.
(*d*) *Full Time or Actual Earnings :* Only actual earnings shown.

(5) *Hours of Labour :* Normal and actual hours shown.

List of Industries for which details are Published Separately.

Mining and Quarrying :	Quarrying.
	Metalliferous and shale mining.
Woodworking :	Carriage, cart, etc., building and repairing.
	Packing case, box, etc.
	Coopering.
	Mill-sawing, machine-joinery, etc.*
	Basket.
	Furniture.*
	All woodworking.*
Metal :	Pig iron.*
	Smelting, rolling, etc., of iron and steel.*
	Tinplate.
	Smelting, rolling and casting of non-ferrous metals.*
	Brass founding and finishing.
	Bedstead.
	Sheet metal.
	Wrought iron and steel tubes.
	Light castings.
	Hollow-ware.
	Wire-drawing, weaving, etc.
	Anchor and chain.
	Screw, nail, nut, bolt and rivet.
	Needles, pins, fish-hooks, etc.
	Engineering.*
	Shipbuilding.*
	Cutlery, tools, etc.
	Farriery and general smiths' work.
	Railway carriage and wagon.
	Textile machinery accessories.
	Gold, silver, jewellery, etc.
	Heating and domestic engineering.
	All metal.
Brick, Earthenware, etc. :	Pottery.*
	Brick, tile, etc.*
	Glass.*

*In these cases the results are also published in the Abstract of Labour Statistics.

Brick, Earthenware, Etc.:	Chemical. Cement. Explosives. Paint, colour and varnish. Soap, candle, oil and tallow. All pottery, brick, glass and chemical.*
Buildings :	Building.*
Gas, Water, Electricity, etc. :	Gas supply.* Electricity supply. Water supply.
Textiles :	Cotton.* Wool.* Lace. Silk. Linen.* Jute. Hosiery.* Carpet. Bleaching, printing, dyeing and finishing.* Making-up and packing. All textiles.*
Clothing :	Tailoring (retail bespoke). Tailoring (ready made).* Dressmaking. Mantle and costume. Shirt, blouse, etc.* Corset. Millinery. Felt and silk hat. Boot and shoe making (bespoke) and repairing. Boot and shoe making (ready made).* Gloves. Fur. Laundries. Dyeing and dry cleaning. All clothing.*
Leather, etc. :	Fellmongering and tanning. Saddlery and leather goods.
Food, Drink, etc. :	Grain-milling. Bread baking.* Biscuits. Cocoa, chocolate and sugar confectionery.* Preserved food, jams and sauce. Bacon curing and sausage making. Fish curing. Sugar refining. Seed crushing and cattle food. Brewing, malting and bottling. Spirit distilling and compounding. Aerated waters, cider, etc. Tobacco. All food, drink, etc.*
Paper, Printing, etc. :	Paper.* Wallpaper. Manufactured stationery. Cardboard box. Newspaper and general printing.* All paper, printing, etc.*
Other Industries :	India rubber. Brush and broom. Pianos, organs and other non-metal musical instruments. Waste reclamation.

*In these cases the results are also published in the Abstract of Labour Statistics.

TRANSPORT :	Railways.
	Road transport and warehousing.
	Tramways.*
PUBLIC ADMINISTRATION :	Employees in Government Industrial Establishments.*
	Local Authority Non-trading Services.
	Municipal docks, harbours, etc.
	All Public Utility Services.*

*In these cases the results are also published in the Abstract of Labour Statistics.

II. INFORMATION AVAILABLE MONTHLY.

The " Ministry of Labour Gazette " contains each month particulars as to the total number of workers employed and the total amount of wages paid by selected employers in the following industries :

Cotton	Boot and Shoe
Woollen	Pottery
Worsted	Brick
Carpet	

The particulars shown do not distinguish age or sex, or time-workers and piece-workers. No particulars are obtained as to hours of labour.

III. OTHER INFORMATION.

A summary of other information available as to earnings is shown in the appended table.

UNITED KINGDOM: RATES

Industry		Origin		Scope				Character					Hours	Title of Source
Industry	Sub-Group	Origin of Rate	Source of Data	Territorial	Frequency	Classes of Workpeople	Proportion of Workpeople Covered	Minimum or Standard Rate	Time or Piece Rate	Hourly, Daily, or Weekly Rate	Supplementary Payments	Actual or Average Rates		
Agriculture, etc.	Agriculture	Reports of Inspectors	Scottish Board of Agriculture	Each County in Scotland	Half-yearly	All Classes	Comprehensive	Average	Time	Weekly	Value of Allowances in kind given separately	Estimated Averages	—	White Paper Published by Scottish Board of Agriculture
Mining and Quarrying	Coal Mining	Partly in Collective Agreements	Evidence before Coal Commission 1925	Principal Coalfields	Irregularly but Records of Changes are published as they occur	All Classes	Comprehensive	Standard	Time	Shift	Allowances not shown	Actual Rates	Normal	Complete Record of Rates is given in the Report of the Coal Commission 1925. Changes in the basis Rates and in the percentage additions to basis rates are published as they occur in the Ministry of Labour Gazette. Rates for labourers only are given in the Report on Standard Time Rates. Hours are published in the Abstract of Labour Statistics.
Transport	Railways	Collective Agreements and Returns from Railway companies	Ministry of Transport	All Districts	Annually	Principal Grades	Comprehensive	Standard and Average	Time	Weekly	Allowances not shown	Actual Standard Rates and Average Weekly wages	—	White Paper published by Ministry of Transport.

UNITED KINGDOM: EARNINGS

Industry		Origin		Scope					Character				Hours	Title of Source
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Periods Covered	Classes of Work-people	Proportion Covered	Time or Piece	Time Unit	Allowances	Full Time or Actual Earnings		
Mining and Quarrying	Coal Mining	Total Wages Bill	Collected by Mines Department	All districts	Quarterly	Quarter	All classes without distinction of age or occupation	Over 95 per cent.	Time and piece not distinguished	Shift	Not shown	Actual earnings only shown	Not shown	Quarterly Return of Output, Proceeds, etc., of Coal Mining Industry published by Mines Dept.
Metal	Iron and Steel smelting, rolling, etc.	Total Wages bill	National Federation of Iron and Steel Manufacturers	All districts	Monthly	Month	do.	Not known	do.	Week	Not shown	do.	do.	Monthly Bulletin of National Federation of Iron and Steel Manufacturers
Transport	Railways	Total wages bill	Ministry of Transport	All districts	Yearly	One week in year	Earnings given for each grade not distinguished by age	All	do.	Week	Not shown	do.	do.	Annual Return on Railway Staff and Wages published by Ministry of Transport

THE UNITED STATES

THE wage statistics of the United States, as elsewhere, assume a great variety of forms which make comparisons of wages by industry within the same country as difficult, and sometimes as misleading, as comparisons among different countries. The simple wage rate, full-time weekly earnings, hourly earnings, actual per capita weekly earnings, and actual per capita annual earnings are forms of wage measurement, all of which are found in American wage statistics. What appear to be identical measures, moreover, are not always derived in precisely the same way ; nor can one form of measurement be easily and certainly converted into another. Under the circumstances, therefore, any use of American wage statistics, either for comparisons within this country or for international comparisons, must be preceded by precise definition of the unit of wage measurement employed in the comparison.

American industry further is scattered over a large geographical area and the statistics of industry, including wages, are collected, compiled and published by many public and private agencies. These agencies vary in statistical practise, with the result that the statistical materials they furnish differ widely in reliability, in size of sample, and in the number of industries and occupations to which they pertain. It is, for this reason, not always possible to obtain wage statistics in the United States that may be regarded as typical for the country as a whole unless remote and little-known sources of wage statistics are canvassed. The use, for example, of the statistics of wages, published by the New York State Industrial Commission, would lead to entirely erroneous conclusions regarding the present level and past course of cotton textile wages in the United States because industrial conditions in New York are so unlike those of the New England States, on the one hand, and the Southern States, on the other. The statistics of union rates of wages, published by the Federal Bureau of Labour Statistics, likewise give a misleading picture because they include so slight a representation of the manufacturing industries and are heavily weighted for the building, transportation and service occupations.

Nearly all the sources here described are the reports of public statistical bureaus and of temporary public commissions. In a few instances, however, the reports of private agencies have also been referred to. Thus the National Industrial Conference Board now publishes a range of wage statistics for many branches of industry that help to complete the available data for important periods. But private sources of wage statistics have by no means been thoroughly canvassed.

DESCRIPTION OF AMERICAN STATISTICS of WAGES AND HOURS

LIST OF INDUSTRIES

I. MANUFACTURING INDUSTRIES.

A. Chemicals :	Ammunition and Explosives. Fertilizers.
B. Food Products :	Bread and Other Bakery Products. Flour, Feed and Other Grain Mill Products. Cane-sugar Refining.
C. Iron and Steel :	Crude Iron and Steel and Rolled Products. 1. Blast Furnaces. 2. Steel Works and Rolling Mills. Other Iron and Steel Products (hardware, stoves, etc.).
D. Leather :	Boots and Shoes—other than rubber. Leather—tanned, curried, and finished.
E. Lumber	Lumber : Planing Mill Products. Lumber and Timber Products.
F. Machinery : not including Transportation Equipment.	Agricultural Implements. Electrical Machinery, Apparatus and Supplies. Foundry and Machine-shop Products.
G. Metal Products : other than iron and steel.	Brass, Bronze, and Copper Products. Smelting and Refining, Non-ferrous Metals.
H. Paper and Printing :	Paper and Wood Pulp. Printing and Publishing. 1. Newspaper and Periodical. 2. Book and Job.
I. Rubber :	Rubber Tyres and Inner Tubes.
J. Textiles : Manufacture and Re-manufacture.	Clothing, Men's. Clothing, Women's. Cotton Manufactures. Woollen Goods and Worsted Goods. Silk Manufactures.
K. Tobacco Manufactures :	Cigars and Cigarettes. Tobacco—chewing, smoking and snuff.
L. Transportation Equipment :	Cars—steam and electric, railroad repair shops. Motor Vehicles. Ship and Boat Building—steel and wooden.

II. COAL MINING, BITUMINOUS AND ANTHRACITE.

III. BUILDING TRADES.

IV. UNION SCALE OF WAGES AND HOURS OF LABOUR.

V. ADDITIONAL WAGE STATISTICS.

A. United States Federal Reserve Board Bulletin.
B. Special Report on State of Ohio.

THE UNITED STATES: RATES

Industry		Origin		Scope				Character					Hours	Publications
Industry	Sub-Group	Origin of Rate	Source of Data	Territorial	Frequency	Classes of Workers	Proportion of Workers	Minimum or Standard Rates	Time or Piece Rates	Hourly, Daily, or Weekly Rates	Supplementary Payments	Actual or Average Rates		
Data are given for following Trade groups: 1. Boots and shoes and related industries 2. Building trades 3. Clothing and garment trades 4. Food and beverages 5. Metal and machinery trades 6. Paper and pulp 7. Printing and allied trades 8. Stone working and quarrying 9. Teaming and trucking 10. Telephone and telegraph service 11. Textiles 12. Theatrical Employment 13. Woodworking 14. Misc. Trades 15. Public service 16. Steam railroad service 17. Railway express service 18. St. and electric railway service 19. Passenger bus service	Data given by occupation	Collective agreements except for Public Service, Transportation, Telephone and Telegraph where official records of employers were used	Massachusetts Department of Labor and Industries (official)	Data given by city, for each occupation separately	Annual: rates as of July 1st of specified year	Not separated by sex	Canvass of all local labor organisations	Minimum rates	Only time rates given	Data given by hour, by day, or by week, but all rates may be reduced to an hourly basis	Supplementary payments excluded	Actual minimum rates	Normal hours given for: full day; Saturday; full week	Massachusetts Department of Labor and Industries, "Time Rates of Wages and Hours of Labor in Massachusetts" Labor Bulletin (annual)

THE UNITED STATES : RATES—*continued*

Industry		Origin		Scope				Character					Hours	Publications
Industry	Sub-Group	Origin of Rate	Source of Data	Territorial	Frequency	Classes of Workers	Proportion of Workers	Minimum or Standard Rates	Time or Piece Rates	Hourly, Daily, or Weekly Rates	Supplementary Payments	Actual or Average Rates		
Data given for following Trade Groups : 1. Bakers 2. Building trades 3. Chauffeurs, teamsters and drivers 4. Granite and stone trades 5. Laundry workers 6. Linemen 7. Longshoremen 8. Printing and publishing ; Book and job ; newspapers 9. Streetrailroads ; Motormen and conductors 10. Bus drivers 11. Barbers	Data given by occupation	Collective agreement	United States Dept. of Labor ; Bureau of Labor Statistics (official)	Data given for the United States as a whole ; and each of 66 important industrial cities located in 36 states	Annual rates as of May 15 of specified year	Predominantly male. Apprentices excluded	Covers 824,313 members of organised trades in 1927	Minimum	Predominantly time rates	Hourly rates and full time weekly rates	Bonuses included in rates when remaining in effect indefinitely. No family allowance or social insurance contribution	Actual rates by city. Weighted average rates for the United States as a whole	Normal hours given for : full day ; Saturday ; full week	United States Department of Labor, Bureau of Labor Statistics, " Special Bulletin " (annual)

UNITED STATES: EARNINGS

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
All manufacturing industries	No occupations specified. Information by industry	Total wage bill and number of workers employed on the 15th of each month	Department of Commerce: Bureau of the Census (official)	Data given for: entire United States; the individual States; and for cities with 100,000 inhabitants or more	Biennial (odd) years	Calendar year	All wage earners and salaried employees separately	Covers all establishments reporting products valued at $5,000 or more	Includes all wages whether time or piece	Per capita annual earnings may be computed by dividing total wages paid during year by average number employed during year	Bonuses included. No family allowance or social insurance contribution	Actual earnings only given	No data	United States Bureau of Census, "Census of Manufactures" (biennial)
Selected manufacturing industries	By industry and by occupation	Individual earnings	U.S. Dept. of Labor, Bureau of Labor Statistics	Data given for the United States as a whole; and for most important states for each industry, selected on basis of number employed in the industry as reported by Census of Manufactures	Usually biennial	Representative pay period (usually one week)	By occupation, for males and females separately and combined	Number covered varies from 10 to 50% of number reported by Census of Manufactures	Includes all wages whether time or piece	Actual hourly earnings and actual and full-time weekly earnings	Bonuses appear to be included. No family allowance or social insurance contribution	Both actual and full-time weekly earnings given	Standard and actual weekly hours	United States Department of Labor, Bureau of Labor Statistics, Special Bulletins

UNITED STATES: EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
54 Manufacturing Industries, Bituminous Coal and Anthracite Coal	No occupations specified. Information given by industry	Total wage bill and number on payroll for the week ending nearest the fifteenth day of the month	United States Department of Labor, Bureau of Labor Statistics (official)	Data given for the United States as a whole	Monthly	Week ending nearest the fifteenth day of the month	All wage earners combined	Covers about 40% of the total number employed in the selected industries as reported by Census of Manufactures	Includes all wages whether time or piece	Per capita weekly earnings may be computed by dividing total wages paid during week by number employed during that week	Bonuses appear to be included. No family allowance or social insurance contributions	Actual earnings only	No data	United States Department of Labor, Bureau of Labor Statistics, "Monthly Labor Review" (monthly)
25 Manufacturing industries	No occupations specified. Information by industry	Total wage bill	National Industrial Conference Board (private)	Data given for the United States as a whole. For cotton goods manufacturing, data given separately for mills operating in Northern States and for mills operating in Southern States	Monthly	The first full week in each month. For each separate industry only quarterly averages are published	Data given separately for males unskilled; males skilled; females; and all wage earners combined	Covers 20% of the wage earners employed in the selected industries (Report 1927, page 19)	Includes all wages whether time or piece	Hourly and weekly earnings	Bonuses appear to be included. No family allowance or social insurance contribution	Actual earnings only	Actual hours per week (data given only for all wage earners combined)	National Industrial Conference Board, New York City. "Wages in the United States," (Annual)

UNITED STATES: EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
51 Manufacturing Industries	No occupations specified. Information by industry	Total wage bill	Pennsylvania Department of Labor and Industry (official)	Data given for the State of Pennsylvania as a whole	Monthly	Week ended the fifteenth day of the month	All wage earners combined	Covers about 27% of all wage earners reported in Census of Manufacture, 1925, for Pennsylvania	Includes all wages whether time or piece	Actual weekly and hourly earnings	Bonuses appear to be included. No family allowance or social insurance contribution	Actual earnings only	Total number of employee hours during week given, but no data on number employed	Pennsylvania Department of Labor and Industry, "Labor and Industry," (monthly)
All Manufacturing Industries	No occupations specified. Information by industry	Total wage bill	Pennsylvania Department of Internal Affairs, Bureau of Statistics (official)	Data given for the State of Pennsylvania as a whole and by county	Annual	Calendar year	For wage earners, adults and minors separately; and males and females separately; and all wage earners combined For salaried employees—males and females separately and combined	Census of the entire State of Pennsylvania	Includes all wages whether time or piece	Per capita annual earnings may be computed by dividing total wages paid during year by average number employed during year	Bonuses appear to be included. No family allowance or social insurance contributions	Actual earnings only given	No data	Pennsylvania Department of Internal Affairs, Bureau of Statistics, "Report on Productive Industries, Public Utilities, and Miscellaneous Statistics," (annual)

UNITED STATES: EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
58 Manufacturing Industries	No occupations specified Information by industry	Total wage bill	Illinois Department of Labor (official)	Data given for the State of Illinois as a whole	Monthly	One week including the fifteenth of each month	Males and females separately and combined	Covers about 40% of wage earners reported in the Census of Manufactures 1925, for Illinois	Includes all wages whether time or piece	Actual weekly earnings	Bonuses appear to be included. No family allowance or social insurance contribution	Actual earnings only	No data	Illinois Department of Labor, "The Labor Bulletin," (monthly)
54 Manufacturing Industries	No occupations specified. Information by industry	Total wage bill	Industrial Commissioner of New York (official)	Data given for New York State as a whole; for New York City; and for New York State, excluding New York City	Monthly	One pay period ending nearest fifteenth day of the month	Data given for males and females separately and combined	Covers 38% of all factory workers in state. (Industrial Bulletin, Jan. 1929)	Includes all wages whether time or piece	Actual weekly earnings	Bonuses appear to be included. No family allowance or social insurance contributions	Actual earnings only	No data	The Industrial Commissioner of New York, "The Industrial Bulletin," (monthly)

UNITED STATES: EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
39 Manufacturing Industries	No occupations specified. Information by industry	Total wage bill	Industrial Commission of Wisconsin (official)	Data given for the State of Wisconsin as a whole	Monthly	One week including the fifteenth of the month	All wage earners combined	Covers about 30% of wage earners reported in Census of Manufactures 1925 for Wisconsin	Includes all wages whether time or piece	Actual weekly earnings	Bonuses appear to be included. No family allowance or social insurance contributions	Actual earnings only	Actual hours given	Industrial Commission of Wisconsin "Wisconsin Labor Market" (monthly)
Anthracite coal	Data given separately for: common labor, semi-skilled labor, skilled labor, both inside and outside the mine; separately; for contract miners, and for all wage earners combined	Total wage bill	National Industrial Conference Board (private)	Data given for the State of Pennsylvania as a whole	Data collected at irregular intervals	Last half of the following months: June 1914 Oct. 1920 Mar. 1921 June 1921 Oct. 1921 July 1923 Dec. 1923 Dec. 1924 Apr. 1927	Males only	Covers about 65% of wage earners reported in Pennsylvania Report on Productive Industries 1926	Time rates given. Rates for contract miners converted from piece basis	Actual hourly earnings	Bonuses appear to be included. No family allowance or social insurance contribution	Actual earnings only	No data	National Industrial Conference Board, New York City, "Wages in the United States," (annual)

UNITED STATES: EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
Bituminous Coal Mining	By occupation for all miners and loaders combined, and for inside and outside daymen combined	Individual earnings	United States Dept. of Labor: Bureau of Labor Statistics (official)	Data given for: the United States as a whole; and each of eleven important coal producing States	Biennial	Half month pay period	Males only	Covers approximately 25% of wage earners reported by United States Bureau of Mines, 1925	Time rates given, Rates for miners and loaders converted from piece basis	For miners and loaders: 1. Per hour (*a*) Based on time at face, including lunch, (*b*) Time in mine. 2. Perstart (day) 3. In half month. For inside and outside day men: 1. Per hour, 2. Per start (day) 3. In half month	Bonuses appear to be included. No family allowance or social insurance contribution	Actual earnings only	Actual hours. For miners and loaders: 1. In half month based on: (*a*) Time at face including lunch (*b*) Time in mine 2. Per start (day) based on: (*a*) Time at face including lunch (*b*) Time in mine. For inside and outside day men: 1. In half month 2. Per start (day)	United States Department of Labor; Bureau of Labor Statistics, "Special Bulletin" (biennial)

UNITED STATES: EARNINGS—*continued*

Industry		Origin		Scope					Character				Hours	Publications
Industry	Sub-Group	Origin of Data	Source of Data	Territorial	Frequency	Period Covered	Classes of Workpeople	Proportion of Workpeople	Time or Piece Rates	Time Unit	Supplementary Payments	Full Time or Actual Earnings		
Class I. Steam Roads	Data given separately for each of 148 occupations and combined into 7 divisions	Total wage bill	Interstate Commerce Commission (official)	Data given for the United States as a whole	Monthly	The whole month	Covers all occupations, sex not specified	Reports compulsory from all Class I. steam roads	Includes all wages whether time or piece	Total wage bill for month. Hourly and weekly earnings may be computed	Supplementary payments given separately. No family allowance or social insurance contribution	Full time and actual weekly earnings may be computed	Actual hours per month given Standard hours per month and per week and actual hours per week may be computed	Interstate Commerce Commission. "Wage Statistics Class I. Steam Roads in the United States" (monthly)

MEMORANDA PRESENTED BY THE INTERNATIONAL LABOUR OFFICE TO THE CONFERENCES

MEMORANDUM No. 1.

INTERNATIONAL COMPARISONS OF WAGES

INTRODUCTION

INTEREST in international wage comparisons is great, and is steadily increasing. The International Labour Office is in a peculiarly favourable position to gauge this interest and to appreciate the purposes for which the data are required. By the provisions of Part XIII. of the Peace Treaty, the functions of the International Labour Office include the collection and distribution of information on all subjects relating to the international adjustment of conditions of industrial life and labour. Among the questions which fall within this field, few subjects are so vitally important as that of wages.

There are two main types of wage investigation which the International Labour Office conducts. First, the Office undertakes detailed research into wages in different countries, and makes comparisons of the relative levels. Second, it supplies information as to wages in different countries to organisations and individuals who use these data for purposes of their own comparisons.

Among the first class are the international comparisons of real wages in various capital cities which are published regularly in the *International Labour Review*. A second example is the enquiry into wages and hours of work in the coal mining industry, which was undertaken by the Office in consequence of a Resolution adopted in 1925 by the 7th Session of the Conference.[1] A similar comprehensive enquiry was proposed by the 11th Session of the Conference with regard to the wages and other conditions of labour in the textile industry; the plan to be adopted in this enquiry is now under consideration by the Governing Body of the International Labour Office. The Office has also made detailed studies of wage changes in the chief countries.[2]

In the case of information supplied to individuals and organisations for the purposes of their own comparisons, a steady stream of requests as to the wages paid in various industries and occupations in different countries comes to the Office from governments, employers' and workers' organisations, research groups and individuals in all parts of the world. Some of these requests are concerned with only one or a few categories of workers in a given industry in one or two countries. Others are much wider in their scope covering a given industry or several industries in all the chief countries. In supplying answers to these requests, the International Labour Office indicates so far as possible the character of the data available for the different industries and countries, in order that misconceptions may be avoided when the comparisons are made.

[1]Cf. *Wages and Hours of Work in the Coal Mining Industry*, International Labour Office, Studies and Reports, Series D. No. 18, Geneva, 1928.

[2]Cf. *Wage Changes in Various Countries*, 1914-1921. (Series D, No. 2) 1914-1922, (Series D, No. 10) and 1914-1925 (Series D, No. 16), also *The Workers' Standard of Life in Countries with Depreciated Currency*, (Series D, No. 15), and articles in the *International Labour Review*.

The objects of the comparisons which the Office makes and of the enquiries received are various. Some of them are concerned with the relative standards of living in different countries from a social point of view. Others are concerned directly or indirectly with wages as an element in the cost of production, with special reference to the conditions of international competition. On these lines workers and employers request wage data in different countries for use during the course of collective bargaining in support of their arguments for or against a change in wage rates. Wage statistics in different countries are frequently requested in connection with tariffs, the argument for introducing or raising a protective tariff to safeguard the industries of a given country being supported by information with regard to levels of wages which are considered to be unduly low in other countries. Frequently enquiries are directly connected with international competition, including the question of tenders for contracts. Whenever an industry feels an increase in the intensity of competition from abroad, it begins to enquire into the labour conditions in the countries with which it is in competition. In some cases enquiries are made by organisations which have representatives or establishments in various countries and desire comparative information for the purpose of establishing scales of pay appropriate to the conditions of the different countries. In most cases the enquiries are made in relation to some practical object.

In making its own comparisons and in supplying answers to the various requests for information, the International Labour Office makes use of the statistics published in the bulletins and periodicals of national governments and other official bodies. Data given in collective agreements in possession of the Office are also used, while information is obtained from a number of other sources. Particularly important are the data secured by correspondents of the Office in the various countries from employers' and workers' organisations and representative undertakings. In the case of the more comprehensive enquiries such as those proposed by the Conference, information specially compiled or adapted by Governments in association with employers and workers is utilised. In the Coal Mining Enquiry the Office was assisted in determining the most suitable data for comparative purposes by a committee of experts representing governments, employers, and workers.

In dealing with requests for information or in making international comparisons, the Office is seriously hampered as a result of differences in the data available for the different countries and industries. In consequence of these differences every comparison must be accompanied by reservations which weaken the conclusions which can be drawn.

To call attention to practical difficulties encountered in making international wage comparisons as a result of differences in the data available for different countries is the first purpose of this Memorandum. No attempt is made to give a survey of the data compiled in the different countries. Also, attention is directed only to the question of international comparisons, i.e., place comparisons; the question of changes in wages within different countries over

a period of time is not considered, this being purely a problem of national statistics and not of international comparison.

In surveying the difficulties of international comparison, suggestions are made with regard to the securing of greater international comparability of data. But even when comparable data are available, there is still the question of methods of making international comparisons.

Difficulties of International Comparison resulting from Differences in the Wages Statistics available for Different Countries.

Types of Wage Data : One of the chief causes of difficulties of international comparison is that due to differences in the nature of the wage data available for different countries. Also it is not always clear in published statements of wages which type of data is given, the loose term " wages " being sometimes used. The two main types of wage data are rates of wages and earnings. Rates of wages are generally of two kinds, namely, time rates and piece rates. Piece rates may be simple, or various types of bonus systems may be adopted. Time rates of wages may be again divided according as the rates are minimum rates, or the rates actually paid. For most purposes minimum rates are of less interest than actual rates and earnings. They are, however, of value as indicating the lowest amount which any worker of given grade will receive for a specified period of work or quantity of production.

Earnings are the amounts actually received by the worker for work done. In some cases earnings are identical with actual rates. Thus, in the case of time work, the earnings of a worker for a full time week correspond exactly with the actual rates which provide the basis of payment. There is often, however, a difference between actual weekly earnings and full time weekly earnings. The actual earnings may be less or greater than full time weekly earnings according as short time or overtime is worked.

Rates of wages are determined either by individual agreement, collective agreement, or by decisions of wage-fixing authorities, such as Arbitration Courts, wage-fixing boards (e.g., trade boards). Rates of wages are known before the work is undertaken, while the amounts of actual earnings are often not known until the work is completed.

Data with regard to rates of wages are often more readily obtainable than information as to earnings. The wages fixed by collective agreement are usually published by the parties to the agreement for the information of their members. Copies of these agreements are often available. In many countries the Government Department concerned with wage statistics makes as full a collection of important agreements as possible and then summarises the data in its official publications. Statistics of earnings are usually obtained from the payrolls of the employers, although it is sometimes possible to obtain such information from the workers themselves. The data are generally compiled either on the basis of *regular* returns made to an employers' association or to a Government department, or may be secured only by special infrequent enquiries.

A number of countries rarely if ever publish statistics of earnings, while for

very few countries are the data at all adequate for purposes of international comparison. International comparisons are, therefore, at present frequently restricted to rates of wages. In these circumstances it would be of value if countries which cannot at present undertake regular enquiries into earnings would make occasional investigations for the purpose of showing the relation which exists between the rates fixed by collective agreement or otherwise and the earnings actually paid. For certain countries and industries the rates of wages published are minimum rates fixed by agreement, the actual rates being considerably higher than the minima. In other cases the rates fixed by agreement correspond closely with the rates actually paid, and therefore with earnings. It would be useful in all cases where statistics of rates are published if indications could be given as to the relation between the rates and earnings. One of the objects of the German enquiry into earnings conducted during 1927 was to determine this relation between the rates fixed by collective agreements and the actual earnings. For very few countries, however, are reliable data of this kind available.

Classification of data : There is great diversity with regard to the methods adopted in various countries for classifying the wage data published. This renders international comparisons difficult. In the case of rates of wages fixed by collective agreement, or in other ways, the Government department or other body compiling wage information is of course not responsible for the original classification. This may be the result, for example, of the type of workers' organisation which has developed.

A number of countries publish in summary form the actual provisions of many of the chief agreements, using the classification adopted in the agreements themselves. Such publication is useful, as it enables the original data to be used or combined in different ways according to the purpose for which the information is required : thus the British Ministry of Labour publishes in its *Labour Gazette* the rates of wages fixed by most of the chief agreements. The United States publishes union scales of wages for a number of the chief occupations in respect of which such scales are in force. The Dutch agreements are summarised in the Maandschrift of the Central Statistical Office. In Australia and New Zealand the rates fixed by agreements or by awards are published in great detail.[1]

In combining information as to rates of wages into general averages, the practice of different countries varies considerably. In certain countries averages are given by occupation, while in others the more general groups of skilled, semi-skilled and unskilled workers are used.

With regard to earnings, the classification depends to a large extent on the information which employers are willing to supply. This, in turn, is determined mainly by the relative amount of work which would be involved in supplying greater or less details. In the United States the Bureau of Labour Statistics secures information as to earnings in each of the chief occupations of the various industries

[1] Throughout this report various countries are mentioned solely as examples. It should not be considered that the countries mentioned are the only countries which have adopted the practice under consideration.

covered by the enquiries which it conducts every two years. On the other hand the statistics of earnings compiled by the National Industrial Conference Board are generally classified into the groups, skilled, semi-skilled, unskilled; each group being subdivided according to sex. In Sweden the information published as a result of the Government's annual enquiries into earnings are classified into the following grades: men, women, young persons.

Area covered: In the case of wage rates the area to which the rates apply is determined by the parties to the agreement, or in the case of awards, by the authority concerned. Usually rates vary according to district in any country, and therefore the provisions of agreements or of awards give information with regard to the levels of wages in each of the chief districts. In information published by governments the practice of the various countries differs widely; some give data for one or a few towns only while others cover a much wider area. Difficulties of international comparison also arise as a result of the scope of the averages compiled; some cover large towns only, while others cover both large and small towns.

Frequency of enquiries and up-to-dateness of information: Rates of wages being determined before the work is undertaken, they can easily be compiled so as to be practically up-to-date. Earnings are always to some extent out of date. The degree to which this is so is determined by the frequency with which those collecting the information conduct their enquiries and by the length of time taken in compilation. As already stated, in certain countries no regular collection of information with regard to earnings in the chief industries is undertaken. In Great Britain and Germany, for example, so-called wage censuses are undertaken only at irregular intervals. Thus in Great Britain wage censuses were conducted in 1906–7 and in 1924.[1] In Germany, a wage and salary census was held in 1920, and an extensive enquiry into earnings in 1927. The United States Bureau of Labour Statistics compiles earnings in most of the important industries once in two years. In Sweden statistics of earnings are compiled annually for all the chief industries. The National Industrial Conference Board compiles information supplied each month by employers in a large number of industries.

For the purpose of international comparison, difficulties have been encountered owing to the rapidity with which wage information became out of date. This was especially true during the period of rapidly fluctuating values of money a few years ago. At the present time the difficulty is less serious, and in countries in which conditions are now generally stable, data with regard to earnings even a year or more old can often be utilised.

Difficulties due to objects of Comparisons: In the preceding paragraph indications have been given as to difficulties of international wage comparisons which arise

[1]In the coal mining industry in Great Britain, statistics of earnings are compiled regularly and published each quarter. They show the average earnings of all workers in each district. For certain industries, particularly the textile industry, returns are obtained from employers showing the total wages paid in a given week or month, together with the number of workers to which these wages are paid. These data are compiled by the Ministry of Labour mainly to show changes in the volume of employment. Similar figures are compiled each month by the United States Bureau of Labour Statistics.

in consequence of differences in the nature of the data available, or in the methods and frequency of compilation. The comparisons themselves depend, however, also on the purpose for which the comparisons are to be made. There are two main purposes: first, to compare the relative purchasing power of the workers' wage, and second, to compare wages from the point of view of cost of production. For the former purpose the most suitable data are actual earnings for some considerable period of time. For many industries, weekly earnings are satisfactory, but account should be taken of seasonal variations in employment, i.e., the possibility of overtime, short time, and unemployment. Where these are important, average annual earnings are the most satisfactory, but are rarely available. For certain purposes a suitable standard of comparison is the wage paid for full time work, i.e., excluding unemployment, short time, and overtime. For time workers actual rates are of value; for piece workers enquiries into earnings must be made, and the statistics of many countries are weak in this respect.

In considering wages as an element in cost of production, the wage paid for a given output is the most satisfactory basis for international comparison.[1] For this purpose time rates are of little value owing to differences in the organisation of industry, methods of work, efficiency of labour, and economic conditions in the different countries. Piece rates are essential if satisfactory comparison is to be made, but in this case too, difficulties arise owing to differences in the conditions of production within the different countries; also piece rates are much less frequently available than time rates or even than earnings. Also, many piece work lists are highly technical in character and can only be used effectively by experts of the industry concerned.

To obtain the information necessary for a reliable result, special detailed enquiries are necessary in each industry for which comparison is desired. It appears essential that the products on which the comparisons are to be based should be defined with precision. The product selected as a basis should represent as far as possible the typical products of the countries covered by the comparison. As an example of the difficulties which arise, the textile industry may be mentioned. Thus a large proportion of the yarn spun in Lancashire is produced by mule spinning, whereas in the United States it is mainly ring spun. Again in Lancashire the typical counts of yarn are much higher than those representative of the production of the oriental countries. On such matters, the advice of experts is necessary if comparisons are to be satisfactory.

Certain of the difficulties of comparison mentioned in preceding sections are illustrated by the following tabular description of the chief officially published statistics available for a reasonably up-to-date comparison of wages as an element in the standard of living of workers in the cotton textile industry in certain countries. Mention is made only of data for the years 1927 and 1928 as earlier data would in most cases be of little value for an up-to-date comparison. The cotton textile industry being to a large extent a piece work industry, only statistics

[1] A report on wages as element in the cost of production by Prof. A. L. Bowley, was submitted to the International Statistical Institute at its meeting in Cairo in 1927, as a basis for the further study of this question by the Institute.

COTTON TEXTILE MANUFACTURING

Summary Description of Recent Official Wage Data.

Country	Frequency of publication	Date of latest information	Nature of data	Classification		
				Occupation and sex	Age	Geographical
Austria	Half-yearly	June 1928	Minimum rates according to collective agreement	Spinners, weavers, and certain other categories given separately; mainly male workers	Mainly adults; young persons given separately	Vienna district only
Canada	Annually	1927	Hourly or weekly wages in a small number of factories	Chief occupations; distinction by sex	None	None
France	Annually	October 1927	Hourly and daily wages	Weavers only, not, however in cotton factories alone but including weavers in other branches	Male workers only	None
Germany	(i.) Special census	September 1927	Average per capital hourly and weekly actual earnings	Spinners, weavers and assistants; distinction by sex	For assistants, data only for workers over 20 years of age	Chief districts and general averages
do.	(ii.) Monthly	November 1928	Hourly and weekly wage rates according to collective agreements	Skilled and unskilled workers; distinction by sex	Mainly adults	Mainly general averages; data for separate districts given irregularly
Great Britain	Monthly	November 1928	Total earnings and number of workpeople during one week[1]	No classification by occupation or sex; totals for the chief departments given (preparing, spinning, weaving, other and "not specified"). Average per capita actual weekly earnings may be calculated by department and for all departments together	None	None
Japan	Monthly	September 1928	Average daily earnings	Data given separately for a few occupations; distinction by sex	Adults and juveniles given separately	—
Poland	Monthly	July 1928	Rates of wages mainly according to collective agreements	Chief occupations; distinction by sex	None	Chief districts
Sweden	Annually	1927	Average hourly, daily and annual actual earnings	Spinners, weavers and similar categories together but covering other branches as well as cotton; adults distinguished by sex	Adults and young persons given separately	Chief districts and general averages
United States	(i.) Every second year	March-June 1928	Average per capita hourly and weekly (actual and full-time) earnings	Chief occupations; also all employees together; distinction in each case by sex	None	By states and general averages
do.	(ii.) Monthly	September 1928	Total earnings and number of workpeople during one week	None; average per capita actual weekly earnings of all workpeople together may be calculated	None	None

[1]These data are compiled mainly to throw light on the employment situation. The total earnings and number of work people are in the plants covered by the returns and not in the industry as a whole

of earnings or of time rates indicative of earnings are described; piece rates unrelated to quantity of output are of little value in considering wages as an element in standard of living.

Similar tabular descriptions for the iron and steel and other industries in which piece work is important would show an even greater degree of incomparability. On the other hand, descriptions for the building, printing and other industries in which time rates predominate would show greater possibilities of comparison.

Suggestions for improving the basis of Comparison: The question of securing greater uniformity in the wage data published by different countries was considered by the First International Conference of Labour Statisticians held in Geneva, 1923.[1] This Conference adopted Resolutions for the purpose of providing a basis for greater comparability. The text of these Resolutions is given in Appendix I.

At the time when the Conference was held, many countries were still in a position of great economic instability, money values were changing rapidly, and variations in wages were frequent and of considerable amount. It was not possible therefore at that time to do more than secure agreement on certain general principles and to encourage the various countries to undertake the systematic publication of wage data.

Economic conditions are now very much more stable and there has been a considerable increase in the quantity of wage data published. The time would therefore appear ripe for endeavouring to lay down in greater detail than was possible a few years ago, the lines along which national statistics might usefully be compiled if they are to provide the most satisfactory basis for international comparisons.

In endeavouring to lay down the plan for such development, the method adopted by the First International Conference of Labour Statisticians might usefully be followed, namely, to establish two related programmes. The first of these would indicate in detail the desiderata for countries with advanced systems of wage statistics. The second programme would be a more modest one suited to countries which are in an early stage in the development of their wage statistics; the second programme might be regarded as a step in the direction of the fuller programme.

In establishing these programmes it would appear necessary to lay down certain general principles and also to consider each of the chief industries separately. Agreement might be reached with regard to the nature of the wage data to be compiled, both in the case of time rates, earnings, and piece rates. The problem of classification should receive attention, and unless it were found preferable to adopt the general classification into skilled, semi-skilled, and unskilled workers, the establishment of a minimum list of occupations (with

[1]Cf. International Labour Office, Studies and Reports, Series N. Statistics, No. 2. Methods of Statistics of Wages and Hours of Labour (a report prepared for the First International Conference of Labour Statisticians). See also Studies and Reports, Series N, Statistics, No. 4, Report on the International Conference of Labour Statisticians.

definitions) for each of the chief industries might be undertaken. A decision should also be reached with regard to the compiling of separate information for adults and juveniles, with distinction according to sex. The scope and methods of averages might usefully be considered and indications given with regard to frequency of publication.

As an illustration of the lines of development which might usefully be considered, the textile industries may be taken. With regard to earnings, an agreement might be reached that so far as possible each country would compile and publish data at least once a year for, say, four representative weeks, showing the average actual weekly earnings and average actual hours of labour of workers in typical occupations. In selecting the occupations for any of the textile industries (cotton, wool, etc.) each branch of the industry (spinning, weaving, and finishing) should be considered. Thus in the case of the cotton industry, data might be given for carders, drawers, ring spinnings, mule spinners, winders, warpers, weavers, and for one or two occupations in bleaching and printing. Distinction should be drawn between adults and juveniles, and between men and women. In addition to these data for representative occupations, information which would permit of the calculation of general averages for all workers together in each division or branch of the industry, would be of value.

A further suggestion may be made. The most typical categories of workers in the textile industries are paid at piece rates. The publication of representative data as to piece rates is desirable. It is recognised that owing to the varieties of products and the highly detailed character of the piece work lists the difficulties in the way of securing representative information would be great. But information is necessary if satisfactory comparisons of relative wage costs in different countries are to be made. Certain information with regard to piece rates is already compiled from time to time by individuals and organisations and used for purposes of international comparison. Possibly agreement might be reached, in consultation with experts from the industry, regarding selection of the classes of work. The aim would be to secure the actual piece rates paid in representative establishments to workers in the chief occupations engaged in the production of a number of defined types of yarn and cloth typical of the output of each country.

Information on the lines indicated in the two preceding paragraphs would be increased in value for the purpose of international comparison if it were accompanied by indications as to the work performed by the workers in each occupation, e.g. the number of spindles or looms controlled.

Other industries in which piece work rates are usual could be considered on similar lines to those described above for the textile industries. In the case of industries and occupations in which time work is usual, the problem is in some respects simpler. As already suggested, indications should be given for time work occupations as to the relation between the rates fixed, by agreement and the actual rates paid. For this purpose periodical enquiries into the earnings of time workers would be desirable.

APPENDIX

Resolutions on Statistics of Wages and Hours of Labour adopted by the First International Conference of Labour Statisticians, Geneva, 1923.

Detailed statistics of rates of wages, of actual earnings, and of normal and actual hours of labour should be collected and published in each country as frequently as possible, account being taken of the special circumstances and conditions obtaining in each case. With a view to facilitating international comparisons, the responsible authorities in each country should, so far as practicable, observe the following principles ;

(1) At regular intervals, and at least once a year, there should be published :

(*a*) statutory minimum rates ;

(*b*) rates fixed in collective agreements ;

(*c*) rates accepted by organisations of employers and workpeople for typical categories of workers.

(2) In order to provide an indication of the general course of wage movements, information should be published at more frequent intervals as to the nature and amount of any changes resulting from alterations in the statutory minimum rates or arranged between organisations of employers and workpeople. Particulars should be given of changes in the normal hours of labour and of alterations in the level of piece-work rates.

(3) At regular intervals not less than once a year, average actual earnings and actual hours of labour during a year, or a typical period in a year should be given for each of the principal industries, and based on data supplied by representative employers or establishments.

(4) From the data indicated above, index numbers should be computed to show the general course of changes in nominal wage rates and in actual earnings. Index numbers of the purchasing power of the wages should also be calculated by relating changes in actual earnings to changes in the cost of living, the necessary precautions being taken to ensure that the two series of data are comparable.

The nominal wages employed in computing the index numbers should be given in every case.

(5) At less frequent intervals general wage censuses should be taken, information being obtained from the pay sheets of establishments to show rates of wages and the actual earnings in a typical week. The information should be given by industries, districts, occupations, and sex, and a distinction should be made between adults and young persons.

Until the principles enunciated above have been applied in the different countries statistics of wages and hours of labour should at least give :

(1) Current rates of wages (hourly or weekly) and normal hours of work of typical categories of time workers; and at regular intervals averages weighted according to the number of workers to whom the data apply both for such categories and for all categories combined.

(2) Actual and full-time earnings and hours of labour for typical categories of workers, especially those paid on piece work. Such statistics should be available for sample periods, at least once a year.

(3) Real wage index numbers based on nominal wage and cost-of-living index numbers.

MEMORANDUM No. 2.

INTERNATIONAL COMPARISON OF REAL WAGES

Theoretical Considerations

I. In the previous memorandum the International Labour Office has described the different kinds of wage and price data available in various countries and outlined some practical considerations and difficulties in making international comparisons of wages between different countries. In the following memorandum theoretical aspects only are considered. It is assumed that the *wages* of different categories of workers, the *prices* of the articles on which they spend their wages, and the *quantities* consumed of the different articles are known in each town or country. Given this information, what is the best method of using it so as to measure the relative level of wages between two different places ?

The object of the enquiry of the International Labour Office is to measure the *relative purchasing power* of wages in the different countries, that is, what the worker can buy with his wages at the current prices of his district. If the problem is to measure the relative purchasing power of wages in different *periods*, the question is one which is frequently answered in the national statistics of the country. The method adopted is to find an index number of wages at the two dates (that is, the wage at the later date is divided by the wage at the earlier date), and to find an index number of prices at the two dates (that is, the usual cost of living index number.) The division of these two ratios gives an index number of real wages. The International Labour Office method is fundamentally the same, although owing to the fact that in place comparisons wages and prices are often expressed in different currencies, the result is arrived at by calculating the cost of a standard budget in finding how many times the workers' wage can purchase this budget. In other words :—

If w_1 and w_0 represent the level of wages in two towns (or at two periods) p_1 and p_0 represent the level of prices.

The time comparison which is made by computing $\frac{w_1}{p_1}$ (that is, an index of wages) and $\frac{w_0}{p_0}$ (that is, an index of prices or cost of living) and by dividing one by the other, is replaced in place comparisons by computing $\frac{w_1}{p_1}$ and $\frac{w_0}{p_0}$ and by dividing one by the other leading to the same result, viz. $\frac{w_1 \times p_0}{w_0 \times p_1}$.

This type of formula involves two problems.

(*a*) that of measuring the general level of wages ;

(*b*) that of measuring the general level of prices.

Measurement of the Relative Level of Wages.

This has already been dealt with to a large extent in the general Memorandum and does not give rise to any serious theoretical difficulties. Where the problem is that of comparing average wages in one occupation, the necessity of weighting hardly arises, but where the problem is that of comparing wages in two given towns or districts for a series of occupations and industries, the question of weighting the figures in proportion to the numbers employed in the different groups arises. In the absence of such information the International Labour Office takes the unweighted average of the wage rates supplied and as the dispersion between the rates is not very great, it has been shown by experiment that the application of weights to the figures has a small effect on the resulting calculations.

Measurement of the Relative Level of Prices.

This problem is more complex and more fundamental and the remainder of this memorandum will be primarily devoted to this question. The wide dispersion of prices per unit of different commodities renders a system of weighting essential. For time comparisons within a country or town the weights adopted are generally those furnished by family budget enquiries, and the weights given by the standard budget are usually taken as constant throughout the period. In place comparisons this method is not sufficient owing to variations in consumption between different countries. The International Labour Office, therefore, adopted the system of taking six different standard budgets and worked out independent results on the basis of each budget. The arithmetic average of these six series of index numbers is then taken. In other words the Office calculates six different measures of the price level in each of the 20 towns covered by the enquiry, and uses these measures for calculating a real wage index number. The index number therefore depends primarily on the wage data and the price data for each town. In each calculation the identical quantities (weights) appear both in the numerator and in the denominator, and therefore have little effect on the final result, and tests have been made to show that considerable and even violent changes in the weights have very little effect on the resulting index numbers.[1] The method adopted by the Office is, therefore, somewhat elaborate, and may be considered by some hardly justified in view of the approximate nature of the data available. If a large extension of the enquiry, both in respect of wages and of towns covered, is contemplated, it might be desirable to consider whether the method could be simplified without losing much of its value, and certain suggestions to this end are put forward in the following paragraphs.

II. It is desirable to refer again to the analogous case of the calculation of the level of real wages between different times in the same place. Although the usual method is to calculate the change in the level of prices (that is, the cost of living index number) by taking the standard budget for base years, and applying this to the price of successive years, it has, however, been pointed out by many statis-

[1]The small effect of the weights on the index number of prices has recently been illustrated in the case of Great Britain. The cost of living index number for this country is often criticised on the ground that it is based on a budget established in the year 1904. Dr. Bowley, however, in the *Economic Journal*, June 1927, has shown that the use of a more up-to-date budget gives almost identical results.

ticians that a more accurate method, especially when the quantities or weights have substantially changed between the two periods, is to compute two measures, one formed by using weights of the earlier period, and the other formed by using the weights of the latter period, The mean of these two is then taken. The result (using the geometric mean) has been termed by Professor Irving Fisher the " ideal index number " as it possesses certain, in his opinion, essential qualities such as " reversibility." This method has not been frequently applied for time comparisons in the same country, partly because the weights for later periods are not available, and partly because it was assumed that the weights applicable to the earlier period would be also applicable to the later period.

In place comparisons this assumption is not justified. The quantities consumed, or the standards of consumption, differ fairly considerably from one country to another, and in comparing real wages between, say, London and Berlin, it is necessary to take into account not only the consumption of the London worker, but also of the Berlin worker. The International Labour Office calculations do this, but also do much more, and the real wages of a Berlin worker are compared with those of a London worker, not merely on the basis of the consumption of these two categories, but also on the basis of four other categories also. The following figures show the results for July, 1928 for five towns.

TABLE I.

LEVEL OF REAL WAGES IN CERTAIN CITIES COMPARED WITH LONDON (=100) JULY 1928.

Purchasing power calculated on basis of:—	Town				
	Brussels	Berlin	Rome	Stock-holm	Phila-delphia
British consumption	49	66	40	86	180
Belgian consumption	51	64	43	79	170
German consumption ..	50	76	41	75	180
Italian consumption	50	67	47	85	173
Swedish consumption	53	80	43	95	200
American consumption ..	49	73	46	92	184
Average	50	71	43	85	181

In each of these cases, the factor $\frac{w_1}{w_0}$ is constant, the factor $\frac{p_1}{p_0}$ however, varies, i.e., the relative level of prices is calculated according to six different systems of weighting. Each of the six index numbers for Berlin, e.g. is based on Berlin wages and Berlin prices only (in comparison with London wages and London prices). Prices in Rome, Brussels, etc., do not enter into the calculation, but only the *quantities* consumed in these towns.

It will be seen that these figures do not show very great variations, whichever budget of consumption is used. The application of the " ideal index number " method, would mean, however, that in comparing London and Berlin,

only the two figures and 76 and 66 would be taken, i.e., the figures based on the consumptions appropriate to the two towns (viz. British and German); in comparing London and Brussels, the two figures 49 and 51 would be taken, based on the consumptions appropriate to these towns, viz. British and Belgian, and so on. The remaining figures have only a limited application; the figures in the first column show the changes in real wages not only of a British worker adopting the German standard and a German worker adopting the British, but of a worker who moved from London to Berlin but adopted the Belgian standard, the Italian standard, the Swedish standard and the American standard respectively. These calculations, it is submitted, are not of very great practical interest. The case in which, for example, an American worker is moved from Rome to Berlin, and maintains his American consumption is somewhat rare. The analogous calculation of time series would imply that the change in the cost of living between say 1914 and 1928 should be based not on the consumption (weights) of these two years, but on the consumption of the intermediate years, a calculation of mere theoretical value.

The calculation of real wages between two towns by considering only the consumption in these two towns would reduce the present calculations by two-thirds without, it is suggested, any serious loss in the value of the results. The results of this method are shown in column B of Table II. on page 121.

A drawback to this method is that it is necessary to find for each town an appropriate budget of consumption. If no such budget is available, it is necessary to assume that the budget of another town or country applies. In certain cases, this does not cause serious difficulty. It might be assumed, for example, that in the absence of further information, the Swedish budget might be adopted for towns in the Scandinavian countries, the Belgian budget might be adopted for French or even Dutch towns, etc. This method, however, leads to some rather arbitrary assumptions in the case of certain towns.

If for each town, a budget of consumption were available appropriate to the workers in that town, and the present method of the International Labour Office were applied, the number of index numbers calculated would be N^2 where N is the number of towns. At present where the returns cover 20 towns, the number of index numbers to be calculated would thus be 400, or 20 for each town. The actual number of indexes calculated with six budgets, is 120. The number to be calculated on the above suggestion (the ideal index number) would be 40 and the means of 20 pairs of index numbers.

There is, of course, no justification for limiting the number of budgets of consumption to six, as in done at present by the International Labour Office. The increase in the number would however involve extra work without a much more satisfactory result. The six budgets, however, may be taken as representative of different standards in the countries covered by the comparisons and the average of the six series of index numbers may be taken as giving a rough measure of the general purchasing power of wages. The selection of six may therefore be justified on this ground. It must be pointed out, however, that if the object of

calculating six separate series of index numbers is primarily to provide an adequate basis for calculating a general international average, the result could be obtained with equal accuracy by calculating the real wages *directly* from *one composite international basket*. The number of index numbers would thus be N – i.e. equal to the number of towns for which wage and price-data are secured.

GOLD WAGES, GOLD PRICES, REAL WAGES
JULY, 1928.

	Wages			Basket of Provisions			Real Wage Index Col. 4 Col. 7
	In currency of country	In dollars	Index number	Cost of Budgets	Cost in dollars	Index No.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Amsterdam ..	33.62 fl.	13.50	74	22.05 fl.	1.48	93	8
Berlin	58.35 mks.	13.92	76	43.62 mks.	1.74	109	70
Brussels ..	234.79 frs.	6.54	36	247.82 frs.	1.15	71	51
Dublin ..	934.7d.	18.93	103	489.4 d.	1.65	103	100
Lisbon ..	102.44 Esc.	4.54	25	192.2 esc.	1.44	90	35
Lodz	57.08 zl.	6.39	35	67.7 zl.	1.27	79	45
London	903.2 d.	18.29	100	477.5 d.	1.62	100	100
Madrid	68.41 Ps.	11.28	62	67.5 Ps.	1.85	116	54
Milan	168.09 lire	8.81	48	190.8 lire.	1.67	104	46
Ottawa ..	32.40 dls.	32.34	177	10.67 dls.	1.78	111	160
Paris	237.03 frs.	9.29	51	223.05 frs.	1.46	91	60
Philadelphia	45.91 dls.	45.91	25	13.59 dls.	2.23	139	180
Prague	242.64 Kr.	7.18	39	282.12 Kr.	1.39	87	45
Rome	145.45 lire.	7.62	42	178.1 lire.	1.56	98	42
Stockholm ..	65.33 kr.	17.50	96	40.7 kr.	1.82	112	85
Tallinn ..	20.60 kr.	5.54	30	27.12 kr.	1.22	76	40
Vienna ..	60.69 shgs.	8.54	47	75.6 shgs.	1.78	111	42
Warsaw ..	54.80 zl.	6.14	34 34	69.4 zl.	1.30	81	42

The calculation of the level of real wages in the different towns by this method is shown in the following table in comparison (1) with the existing method and (2) the method suggested on page 121, and (3) on a gold basis.

TABLE II.

LEVEL OF REAL WAGES JULY 1928 ACCORDING TO DIFFERENT METHODS

	A. (36 index nos.)	B. (12 index nos.)	C. (6 index nos.)	D. (Gold)
London	100	100	100	100
Brussels	50	50	51	36
Berlin	71	71	70	76
Rome	43	43	43	42
Stockholm	85	90	85.1	96
Philadelphia	181	182	180	251

NOTES TO TABLE

A : The method adopted by the International Labour Office. For each of the six towns, six index numbers are calculated based on six standards of consumption and the average is taken.
B : The "*ideal*" method—for each of the six towns, two index numbers are calculated, one based on the consumption of the base town, the other on the consumption of the town in question.
C : The *composite* method—for each of the six towns, one index number is calculated, based on an international budget which is the aggregate of the six national budgets.
D : Conversion of wages into a common currency (dollars) at the ruling rate of exchange.

The differences between the results given by methods A. B. and C. are, it will be seen, not very large.

It is, therefore, clear that the results of the calculation depend primarily on the wage and price data, i.e. the W's and the P's and only to a small extent on the O's. Provided accurate and comparable information is obtained concerning the wages and prices, the information concerning quantities (weights) need be only approximate. Of the two important items wages and prices—the accuracy of the former is perhaps more important than the latter, for errors in wage data tend to be biassed, while errors in prices tend to be unbiassed. In other words, the errors in the wages tend to be in the same direction (e.g. minimum rates may be given instead of actual rates), while errors in prices tend to be sometimes in excess and sometimes in defect.

APPENDIX

Gold Wages and Prices

The method of comparing wages in different places on a gold basis has been dealt with in the general memorandum and its limitations pointed out. No calculations of gold wages are made by the International Labour Office, but the costs of the aggregate " baskets of provisions " are calculated in dollars, each quarter. If a similar calculation were made for wages, and the dollar wage divided by dollar-prices for each town and the results then converted to index numbers on the basis

of London 100, it is easily shown that the results are identical with formula k, above. The International Labour Office data are converted into a gold basis in the attached table for each of the towns covered by the enquiry.

Where the price index in gold is in the neighbourhood of 100 as (in Rome, Milan and Dublin), the real wage index is almost the same as the gold index, where the price index is less than 100 (as in Brussels, Warsaw, Prague) the real wage index is higher than the gold index, where the price index is higher than 100 (as in Madrid, Ottawa, Philadelphia and Stockholm) the real wage index is less than the gold index. It will be noticed that the dispersion of the real wage index numbers is considerably less than that of the gold wage index numbers.

MEMORANDUM No. 1.

METHODS OF INTERNATIONAL WAGE COMPARISONS

The International Meeting on Statistics of Wages and Hours of Labour held in Geneva, January 1929, under the auspices of the Social Science Research Council, dealt mainly with the question of the establishment of comparable statistics of money wages. The question of methods of comparison was reserved for discussion at a subsequent meeting. The present memorandum gives a survey of methods of comparisons, with special reference to that adopted by the International Labour Office for its comparisons of real wages.

Money Wage Comparisons : In many international wage comparisons the relation between the wages paid in different countries is determined by means of the rates of exchange. In so far as the comparisons are undertaken from the point of view of international competition, this method is of value. It does not, however, take into consideration differences in price levels within each country.

In cases where it is considered desirable to make international wage comparisons by means of the rates of exchange, no important problems of method arise, the results being obtained by means of a simple calculation. The reverse is true of international real wage comparisons. In this case complicated problems of method are involved. These are examined in some detail in the following sections.

Real Wage Comparisons : Comparisons of real wages are sometimes made by means of the rates of exchange. Such comparisons do not give reliable indications, especially during periods of unstable economic conditions. It is true that, in so far as the wages are used in the purchase of articles which enter largely into international trade and whose prices are determined by conditions of world demand, comparisons of wages by means of rates of exchange would be fairly satisfactory provided economic conditions have been stable for a considerable period. A considerable proportion of the workers' wage is, however, spent on commodities and services, the costs of which are only indirectly influenced by world conditions. This is particularly true, for example, of the cost of housing accommodation, while the prices of many other goods and services are also determined to a considerable extent by local custom and react only slowly to changes in world economic conditions. In order, therefore, to obtain a satisfactory basis for international comparisons of real wages, the costs of the various commodities and services on which the worker spends his wage should be taken into consideration.

Attention may first be directed to certain attempts which have already been made to compare the levels of real wages in different countries. The most complete investigation of this kind was that conducted by the British Board of Trade during the period 1905-1909 in England and Wales, Germany, France, Belgium, and the United States of America. Data were collected in a number of large towns in each country as to the retail prices of the various articles, mainly of food,

ordinarily consumed by the workers in the countries covered, and information was also obtained as to the rents of dwellings, generally of two to four, or in some cases of six, rooms. From these the relation of the cost of food and rent in towns in England and Wales to that in each of the other countries was calculated and compared with the ratios between the wage rates and typical categories of workers in a few important industries, generally building, engineering and printing. In this way ratios of real wages in the different countries were established. The chief comparisons were made on the basis of the English standard consumption, and represented differences in the levels of real wages which a British worker would experience if, earning the average wages paid in the different countries, he tried to live as nearly as possible in the same way as he had been accustomed to live in England. Statistics were, however, also compiled on the basis of the average national budget in each country.[1]

The results of the enquiry conducted by the British Board of Trade were utilised by the Economic Commission appointed in 1913 to enquire into questions of wages and cost of living and certain industrial conditions in the Union of South Africa and to make comparison with those in other countries. The Commission compiled data for Canada, Australia, New Zealand, as well as South Africa, and brought them into relation with the results obtained by the British Board of Trade.[2]

British Ministry of Labour Comparisons. In July 1923, the British Ministry of Labour began to publish index numbers of the levels of real wages in London and certain capital cities in other countries.[3] Two methods of comparison were considered by the Ministry.[4] One of these methods involved the use of a series of index numbers which compared the cost of living in post-war periods with the cost before the war. The pre-war parities of foreign exchange rates were also used. The purpose of this somewhat roundabout method of calculation was to convert the wage from one currency to another at rates of exchange which were comparatively stable and when differences between the internal and external purchasing powers of different currencies were relatively small. The method was liable to error owing to the inadequacy of the index numbers available of certain countries showing changes in the cost of living between pre-war and post-war periods. As the date of the outbreak of war becomes more remote, this method would involve continually increasing difficulties and may be rejected as of little practical significance.

The second method described by the Ministry of Labour and adopted for the purpose of making its comparisons, was based on the ascertainment of the

[1]The results of the investigations were published in a series of reports (Cd. 3864, Cd. 4032, Cd. 4512, Cd. 5066, and Cd. 5609); summaries with the main conclusions were given in the *Board of Trade Labour Gazette*, February and July 1908, March 1909, March 1910, and April 1911.

[2]Cf. The Union of South Africa, *Report of the Economic Commission*, January 1914. Since the war the Office of Census and Statistics of the Union of South Africa has made certain real wage comparisons covering the British Dominions and United Kingdom. These comparisons have been of a more limited character than those made by the Economic Commissions.

[3]Similar comparisons for Great Britain, France, Germany, Belgium and the United States of America were made in an article by Mr. John Hilton, Director of Statistics in the British Ministry of Labour, published in the *Manchester Guardian Commercial*, Reconstruction Series, October 1922.

[4]They are described in an article in the *Ministry of Labour Gazette* for July 1923, (pp. 236-8).

" quantities of each kind of food of working class consumption that could be purchased in each city at the retail prices there current, with the wages payable for a given amount of labour measured in hours." The wage data compared were the rates of wages for a week of forty-eight hours at ordinary time rates of adult male workers in typical occupations in a small number of industries which are to be found in every large city. The occupations covered were generally those in the engineering, building and printing industries. The wage rates paid in the capital city only of each country were utilised.

The real wages were calculated by determining the purchasing power of the money wages over food commodities of ordinary working-class consumption. If, for example, the average wage of Berlin workers in the occupations covered would purchase the food commodities at the Berlin level of prices 10 times, and the average wage in London would purchase the same commodities at the London level of prices 15 times, then the ratio of real wages in Berlin and London would be 2 to 3. Actually two different ratios were calculated. For the first of these no account was taken of the quantities of food commodities consumed, while in the second, the quantities ordinarily consumed in Great Britain were employed in the calculations. The differences according to the two methods were relatively small.

Comparisons by the International Labour Office : During the first International Conference of Labour Statisticians convened by the International Labour Office, Geneva, 1923, attention was called to the comparisons which the British Ministry of Labour had made. It was considered that on account of its international character, work of this kind might appropriately be undertaken by the International Labour Office. In consequence of the desires of the British Ministry of Labour and the International Conference of Labour Statisticians, the International Labour Office undertook to continue the comparisons which the British Ministry had commenced. The comparisons of the office were first published in 1924 and have been continued regularly until the present time.

In making its comparisons the Office has continued the essential features of the British Ministry of Labour's methods. Certain modifications were, however, introduced, particularly with a view to giving a greater international character to the comparisons, and in 1929 and 1930 further modifications were introduced.[1] The chief of these changes was a large increase in the number of cities covered by the comparisons ; also an increase in the number of industries and occupations for which statistics are compiled, these changes being in accordance with the recommendations of the international meeting on statistics of wages and hours of labour, Geneva, January, 1929. The statistics which form the basis of the comparisons are now supplied to the International Labour Office twice a year by the Governments' Statistical Offices, or other competent departments in about twenty countries. The figures are for the beginning of January and the beginning

[1] A detailed description of the scope and method of the comparisons as first made by the International Labour Office is given in the *International Labour Review*, October 1924 ; supplementary notes on methods are given in the *International Labour Review*, January and July 1925. Accounts of the modifications introduced in 1929 and 1930 are given in the *International Labour Review*, October 1929 and April 1930.

of July. For most countries data are furnished for several large cities, and the total number of cities now covered by the comparisons is nearly 80. The wage statistics are the hourly wages of adult male workers in 30 occupations in nine different branches of industry. For some countries these are rates of wages and others statistics of actual earnings. These are not, therefore, comparable, and in the international comparisons, the countries are now formed into two separate groups according to whether their figures are rates or actual earnings. The industries, occupations, and also the cities covered, are shown in the article on " Comparisons of Real Wages in Various Countries " published in the *International Labour Review*, April 1930.

An unweighted arithmetic average is calculated for each city. In order to compare these averages, the purchasing power of each average wage for a group of commodities of food, fuel and light and also soap, as consumed by workers' families, is calculated on the lines of the British Ministry of Labour's method described above. Altogether nearly 30 different kinds or qualities of food commodities and four items of fuel and light are included. The full list is given in the article referred to above. The main change which the International Labour Office introduced when it took over the British Ministry of Labour's comparisons was to take account of the quantity of each article consumed in the different countries. The British Ministry of Labour have made use of the quantities consumed by British workers and their families only.

During the period 1924-1929 the International Labour Office calculated six separate series of real wage index numbers, according to habits of consumption in six groups of countries. The method of using these six budgets is described in the *International Labour Review*, October 1924. An average of the six series of index numbers was also calculated.

When the Office modified its comparisons in 1929, it abandoned the calculation of six separate series of index numbers and calculated instead a series based on an international average budget of commodities. This again is given in the article referred to above.

Discussion of the International Labour Office Method : The question of methods of international comparisons of real wages, with special reference to the International Labour Office comparisons, was one of the subjects on the agenda of the second International Conference of Labour Statisticians, Geneva 1925. A copy of the Resolutions adopted on this question by the Conference is given in Appendix I. (p. 129). In connection with the food budget used in calculating the relative levels of real wages, the conference considered the possibility of taking into consideration the nutritive values of food commodities consumed in different countries. Those who supported this proposal were of opinion that the food commodities might differ from country to country, not only in quantity, as in the case in the International Labour Office method, but also in kind. The only connecting link between the food budgets would be equality of nutritive value. This proposal was, however, rejected, largely on the ground that different food budgets may have equal nutritive values and yet represent very different standards of

consumption. Thus equal nutritive values may be obtained either by means of a few cheap commodities or by a great variety of more expensive commodities.

A second general point raised in the discussion was that the comparisons which the Office make do not indicate satisfactorily the relative levels of standards of living in the different countries. In order to obtain satisfactory indications with regard to standards of living it would be necessary to take into consideration not only the wages of the individual worker, but the earnings of other members of the family and also income from other sources. In reply to this proposal, it was pointed out that the Office comparisons do not pretend to indicate the relative levels of standards of living in the different countries, but merely the relative levels of the purchasing power of the wages of certain categories of workers. It was agreed, however, that such comparisons of the purchasing power of wages in different countries might usefully be supplemented by comparisons of the relative standards of living, account being taken of the actual earnings of working-class families, and also of differences in the physiological needs of the populations, due chiefly to climate and race.

In order to obtain the information necessary for comparisons of standards of living, the International Labour Office has been in communication with the Governments of the various countries but it transpires that at the present time the data available are not adequate to permit of satisfactory comparisons.

The subject of international comparisons of real wages was also considered by the International Statistical Institute at its meeting in Cairo, 1927, a report on the subject being presented by M. Michael Huber, Director of the Statistique Générale de la France. An unofficial translation of the resolutions on this subject adopted by the Institute is given in Appendix 2. In this discussion the International Labour Office's method of comparison was carefully considered, but again no serious objection was raised.

In both the above discussions serious criticisms were directed not against the method of comparison adopted by the Office, but against the limited scope of the data on which the comparisons are based, and it is to this question of the need for an extension of the scope of the comparisons that attention is now directed.

Possibilities of a further development of the International Labour Office Comparisons : The occupations covered by the Office comparisons are mainly those which are found in all cities and provide a roughly comparable basis. Many important industries are, however, localised, e.g. ship-building, textiles, coal mining. For satisfactory international comparisons both localised and non-localised industries should be covered. In addition to the general comparisons made by the Office for non-localised industries, an enquiry into the relative level of real wages in the coal mining industry has been conducted and an enquiry into the textile industry is now under preparation. The experience gained by the Office in studying localised industries tends towards the conclusion that such industries should be studied separately. When, however, comparisons have been made for various localised industries, the problem of combining the results obtained with those of the more

general survey could be considered with a view to securing more representative international comparisons.

As already stated, the statistics of money wages available for some countries are mainly time rates of wages, while those for other countries are actual earnings, including the earnings of piece workers, as well as time workers. There is interest in both time rates of wages and actual earnings, and it would be desirable that countries should compile statistics of both these types of data. This was stressed by the International meeting held in 1929. It is recognised that the compilation of statistics of actual earnings, including those of piece workers, involve special enquiries in which the information will be obtained mainly from the pay rolls. Certain countries have already undertaken enquiries of this kind in order to supply the International Labour Office with statistics of actual earnings.

In order to avoid the necessity for frequent enquiries, which are often costly, an occasional enquiry might be conducted to show the usual relation between rates of wages and actual earnings. This relation probably remains fairly constant for considerable periods of time. Rates of wages are regularly available according to the provisions of collective agreements, and could be graded according to the ratios indicated in the special enquiries.

The present comparisons of the International Labour Office are based on the average wage of adult male workers, both skilled and unskilled. The relative wages of these groups of workers differ considerably, however, in different countries. In some countries there are much wider differences than others between wages of skilled and unskilled workers. It would, therefore, be a useful development as soon as adequate statistics for each of these groups of workers are available, to give separate series of index numbers for each groups.

The problem of weighting has already received attention, but so far the International Labour Office has based its comparisons on unweighted averages, owing to the absence of adequate statistics as to the numbers of workers in different industries and occupations in the different countries. An attempt might, however, be made in the early future to introduce a system of weighting based on the approximate numbers; the averages for the several cities within each country might also be calculated by using weights based either on the numbers of workers in the occupations covered in each city, or even on the populations of the cities. The commodity budget at present used by the International Labour Office in calculating the purchasing power of the money wages in the different countries, is limited to articles of food, fuel, light, and also soap. An important development of the comparisons would be to introduce housing accommodation, clothing, and certain miscellaneous items.

In the case of clothing, difficulties arise owing to the considerable differences in the qualities of articles of clothing used in different countries, partly on account of variations in standards of living, and partly on account of climatic differences. Perhaps the simplest method would be to include in the comparisons a certain number of cloths of different types and qualities. With regard to rent, the difficulties are particularly great, but housing constitutes such an important item of

the workers' expenditure that satisfactory comparisons of real wages cannot be made without taking it into consideration. Possibly the rents of defined units of housing accommodation could be obtained, and the question might be considered whether it would be possible to define two or three types of dwelling occupied by workers in the countries covered by the comparisons. For furniture, furnishings, and miscellaneous items, a representative list could be established which might include tram and railway fares, newspapers, tobacco, and certain household utensils.

In order to ensure the compilation of satisfactory comparable figure for clothing, housing accommodation, and miscellaneous items, an enquiry on the spot in each country would appear necessary in order that the prices collected would be for similar qualities.

It would be desirable to extend the comparisons so as to include certain Asiatic, African, and South American countries. The making of real wage comparisons between Oriental and Western countries would be practically impossible owing to the difference in the habits of consumption between East and West. The Office comparisons are at present limited to countries in which the habits of consumption are fairly similar—for example, bread, meat, cheese, butter, etc., are purchased by the workers in all countries covered by the comparison The prices of these commodities are therefore readily available in each city. The inclusion of Oriental and certain other countries would, however, lead to the difficulty that although the prices of bread, meat, tea, cheese, etc., could no doubt be obtained, they would represent the prices paid not by the ordinary worker of the country, but by Europeans and others not representative of the typical consumption of the country. There appears to be no satisfactory way of overcoming this difficulty of wide differences in habits of consumption. It would be of value, however, if comparisons could be made for several groups of countries in which consumption is similar, without attempting to combine the results obtained for each group.

APPENDIX I.

Resolution on International Comparisons of Real Wages adopted by the Second International Conference of Labour Statisticians, Geneva, April, 1925.

The Conference recognises the great theoretical and practical importance of the international comparisons of real wages which were initiated by the British Ministry of Labour and the interest of the researches which have been subsequently carried on by the International Labour Office and which have certainly led to progress in this sphere.

The Conference, however, expresses the opinion, that since these figures cannot be considered as representative of the real differences in the workers' standard of living which exist from country to country, it is desirable that a second series of index numbers should be published along with the first,measuring the relative standards of living of the working classes in the different countries. In this case it would be necessary to base the calculations on the actual earnings

of working-class families and to take account of the differences in the physiological needs of the population, due chiefly to climate and race.

The International Labour Office in publishing these index numbers should give in the greatest detail the original figures, the methods of calculation adopted and any reservations necessary. The different countries should send to the International Labour Office the fullest information, together with a detailed description as to the nature and value of their figures.

APPENDIX II.

Resolutions on International Comparisons of Real Wages adopted by the International Statistical Institute, Cairo, January, 1928 (*I.L.O. translation from the original text in French*).

(*a*) *General Observations.*

1. It is necessary to publish along with the results of the calculations on real wages, the original data on nominal wages, prices and types of budgets used, as well as sufficient indications as to the methods adopted, so that an adequate appreciation of the results obtained and the limitations of such comparisons, can be made.

Generally, comparison of the movement of real wages in similar occupations in each country during the same period contains less elements of inaccuracy than the comparison of the level of real wages at a given moment in different countries.

The latter comparison may be fully justified for the purposes of certain enquiries.

(*b*) *Real Wages considered as measures of the Purchasing Power conferred upon the Worker.*

2. The nominal wages considered must, in principle, correspond to the same unit of labour, taking into consideration the time, intensity and efficiency of this labour.

3. For similar occupations or groups of occupations, it is possible, as a rule, to take as the unit of labour, the unit of time.

It is recommended that in statistics of weekly or daily wages the number of hours per week or day worked be indicated in order that the wage per hour may also be calculated.

4. The wage to be considered is not the basic wage, if there is one, but the total earnings ; it should contain, as far as possible, all the additions, to wages, premiums, contributions to social insurance paid by the worker or the employer, various allowances, advantages received in kind being evaluated in money.

5. If no data are available as to the total earnings, information as to normal or current wages and wage rates may be used ; but in any case, only wages calculated on a comparable basis should appear in the same statistics.

6. The typical budget adopted for the calculation of the cost of living ought in principle to take account of all the expenses which are necessary to meet the needs of a working-class family, in order that the purchasing power of the nominal wage may be calculated with regard to the goods and services corresponding to the habitual mode of living of that family.

7. If it is only possible to take account of a part of the expenses, it will be necessary to indicate clearly the reserves involved in such a partial solution of the problem.

8. The comparison of real wages cannot be satisfactory unless the mode of life of the workers covered does not differ much during the whole period of the enquiry from that which corresponds to the standard budget on which the calculations are based.

The comparisons may nevertheless be satisfactory if the results of the calculations based respectively on typical budgets adopted to the mode of living of the groups considered, are similar; the average of these results, in particular, the geometric average, may be considered as a fairly close approximation to the solution sought.

9. If the normal mode of living of the workers covered by the comparison differs considerably from group to group on account of general economic conditions, influences due to climate and race, etc., or change much while the enquiry is being conducted, the results can only be considered as a first approximate indication of the relative level of real wages at different dates or in different countries. It is particularly necessary in this case to complete the results of statistics with indications as to the data, the methods, the reservations to be made and the particular circumstances which would enable a better appreciation of the narrow scope of numerical results to be made.

(*c*) *Real Wages considered as indications of the Standard of living of the worker.*

10. In international comparisons of real wages considered as indications of the standard of living of the worker, it is necessary to take as basis actual earnings.

11. When possible the comparison of the standard of living should be supplemented by a second comparison in which the earnings of the other members of the family would be included, so that the calculations may be based on the entire earnings of the household, including all the subsidiary advantages.

12. It is preferable to compare real wages in different countries separately for well defined groups of occupations; agriculture, mining, building, engineering, etc.

If complex groups of occupations are being considered, it is desirable in the calculations of average wages to take account of the relative importance of the amounts established for each occupation.

13. Owing to the complexity of the elements which characterise the mode of living of a family, it is impossible to reduce the comparison of standards of living to the comparison of two figures, even if no reservations were made as to the results of the calculations. It will be useful on this point to supplement the statistical by the descriptive method and by monographs, which will give the details necessary for a reasonable appreciation of the standards of living of the workers, taking into consideration convention, custom, economic, occupational, climatical and racial conditions.

MEMORANDUM No. 2.

INDEX NUMBERS OF WAGES

The first International Wages Conference convened by the Social Science Research Council (U.S.A.) in January 1929 appointed a committee to consider the methods of measuring changes in wages over a period of time in a given country. This committee confined itself to laying down general principles for the guidance of the experts in the different countries in the preparation of index numbers of wages and drew up a comprehensive series of resolutions on the methods to be adopted. These resolutions together with a preamble in which the general considerations by which the committee was moved in adopting them, are given above (p. 19).

On the basis of these resolutions the different purposes for which index numbers of wages may be compiled may be summarised as follows :

(*A*) To determine one of the elements for measuring fluctuations in the standard of living.

(*a*) for the working classes as a whole (Series I. of the above resolutions)

(*b*) for different industrial or occupational groups (Series II.)

(*B*) To calculate charges in the remuneration per hour of work (Series IV.)

(*C*) To calculate charges in the aggregate wages bill in proportion to

(*a*) the total cost of production (Series V.)

(*b*) the national income (Series VI.)

(*D*) To aid in forecasting economic conditions (Series III.)

Subsequent to the Conference, the Statistical Section of the International Labour Office decided to compile and publish the data available on wage index numbers in each country together with an account of the methods adopted and the objects which the index numbers were intended to serve. These have been published in the *International Labour Review*, July 1929 (pp. 113-125) and January 1930 (pp. 117-128) and will be compiled for the present at six months intervals.

It was not found feasible to cover all the six series of index numbers described by the committee. No published series of wage index numbers was found conforming to series III. (index numbers as an aid in forecasting economic conditions), or to Series VI. (index numbers showing the variations in the proportion of aggregate wages to the national income). As regards Series V. information is available for two or three countries only (the United States, Australia, and Canada), as to aggregate wages and total costs of production in certain manufacturing industries over a series of years, but no index numbers are published.

The figures collected by the office are, therefore, confined to series I, II, and IV, (Groups *A* and *B* above). As regards one of these series (Series II. index numbers for different industries or occupations), in view of the large and diverse number of industries for which index numbers are available, it was not thought necessary to publish tables showing all the figures available for each industry. A summary of the number of industrial groups for which information is compiled is given in an Appendix (p. 136). Consideration was therefore given only to

statistics for certain large categories of workers (e.g. men and women; skilled and unskilled; industry and agriculture).

Summary of the Information available

According to the information available to the International Labour Office statistics of wage movements are compiled regularly by 18 countries, viz. (in French alphabetical order) Germany, Australia, Union of South Africa, Canada, Denmark, Estonia, Finland, France, Great Britain, Italy, Japan, New Zealand, Poland, Rumania, Sweden, Czechoslovakia, Switzerland and the U.S.A.

In some of the cases, the figures are published only in the form of money wages; index numbers are calculated therefrom, in each case, by the International Labour Office.

The methods of collecting, compiling and weighting are not completely available for all the countries but the information available is sufficient to show that there are considerable differences in the scope, comprehensiveness, periodicity and method of weighting. Roughly classified according to their nature, the index numbers available may be grouped as in the following table.

Index Numbers of Earnings

The majority of these series of index numbers are " general index numbers " of earning, i.e. they attempt to measure the movement of earnings of the workers as a whole in the sense indicated in the first series of Resolutions adopted by the First Conference. Some countries entitle them " general " averages while others state that they apply to " men and women." For the present purpose the latter may be considered as general index numbers as the inclusion of figures for juvenile workers would not change the figures to any appreciable extent. The ten countries for which general index numbers of the movement of earnings are available are Great Britain, Denmark, Estonia, Finland, Italy, Japan, Rumania, Sweden, Czechoslovakia, and U.S.A. Six of those are index numbers of hourly earnings, two of daily, one of monthly, one of weekly and one of annual. The majority of these index numbers are based on " per capita earnings " i.e. the total earnings (hourly, daily, weekly, etc.) of a large number of workers at each date are divided by the number of workers. Such index numbers therefore allow for the change in the proportion of workers in the different industries, .i.e. the movement between industry and industry, which may have important effects on the resulting index numbers and which must be taken into account if (as pointed out in the resolutions adopted by the First Conference) the object of the index numbers is to measure changes in the standard of living of the workers.

Italy adopts the method of " link relatives." On the other hand, Rumania uses unweighted arithmetic averages of average earnings and Estonia uses medians for determining the wage level in each occupation. For Japan the method of weighting is not available.

Of the above ten countries, three, viz., Denmark, Sweden and U.S.A., publish partial indexes, i.e. for special groups of workers (Series II. of the Resolutions). Denmark gives separate index numbers for " skilled men," " unskilled men,"

TABLE I. STATISTICS SHOWING THE MOVEMENT OF WAGES.

Rates of Wages		Earnings	
Hourly Rates	Daily or Weekly Rates	Hourly Earnings	Daily or Weekly Earnings
U.S.A. (men chiefly)	U.S.A. (men) weekly South Africa (men) weekly Great Britain (general) weekly New Zealand (men and women) weekly Poland (men and women)	Czechoslovakia (men and women together) Denmark (general average) Estonia (men and women) Sweden (general average) U.S.A. (general average) Italy (general average)	Great Britain (weekly) general average Finland (annual) men and women Japan (daily) men and women Rumania (monthly) men and women Sweden (daily) general average
Separate figures for skilled and unskilled			
Germany Canada	Germany (weekly)	Denmark (men) U.S.A.	Switzerland (daily)
Separate figures for men and women			
Australia France	Australia (weekly) France (daily)	Sweden U.S.A. (women) Denmark (women)	Sweden (daily and annual) Switzerland (daily) women U.S.A. (weekly) women

and " women," Sweden distinguishes " men " from " women " and the U.S.A. figures show separately " skilled and semi-skilled men," " unskilled men " and " women." One other country should be mentioned in this connection, viz. Switzerland, for which figures are available for " skilled and semi-skilled men," " unskilled men " and " women," but no general averages of these three together are calculated.

A special reference should be made to the index number of earnings for Great Britain—an unofficial series compiled by the London and Cambridge Economic Service. For this series, an index number of earnings for the month of December 1929 (in comparison with July 1914) was computed taking into account not only changes in rates of wages but the shifting of relative numbers from one occupation or industry to another, the re-grading within an industry, and the changes in facilities for earning at piece rates on which the Wage Census of 1924 gave information. From this date onwards, however, it reflects primarily changes in rates as information is not completely available for estimating changes in earnings. It is intended to rectify the index numbers, retrospectively when such information is available (from wage censuses, etc.)

Index Numbers of Rates of Wages.

Three countries compile information as to the general movement of rates of Wages : Great Britain, New Zealand and Poland. None of those countries publish index numbers of rates for different categories of workers. On the other hand six countries (Germany, South Africa, Canada, France, Australia, and U.S.A.) publish index numbers of certain categories of workers but do not give a general index, viz. : the U.S.A. and South Africa for " men " only, Germany " skilled " and " unskilled," Canada " chiefly skilled " and " unskilled factory workers " Australia and France " men " and " women."

For all these series (except those for Canada and France) weights are used based on the numbers occupied in the town and for industry covered, though it is not clear whether constant weights are used throughout or whether they are varied at intervals. Canada and France employ an unweighted average of the wage rates.

Germany, Australia and U.S.A. give separate series for hourly and weekly rates ; (and France for hourly and daily rates).

In all cases, the series are based on normal hourly rates, or full-time weekly (daily) rates, generally taken from collective agreements except for New Zealand where they are based on minimum rates of the Arbitration Courts.

* * *

It will be seen from the summary table above, that countries generally compile index numbers based *either* on rates or on earnings. For only two countries are series of both kinds available, viz. Great Britain and the U.S.A. In each case the index number of rates is compiled officially by the appropriate Government department and the index of earnings is compiled by a non-official organisation ; in the case of Great Britain the London and Cambridge Economic Service and in the case of the U.S.A. by the National Industrial Conference Board.

The British " rate " series indicates that full-time weekly rates are now approximately 70 to 75 per cent. higher than in 1914, the earning series indicates that average weekly earnings are now about 95 per cent. higher than in 1914. This difference is chiefly due to the fact that the latter series takes into consideration the gradual movement during the ten years 1914-1924 of workers from industry to industry and re-grading within an industry (generally this movement is from the lower paid industries to the higher paid and from the less skilled occupations to the more-skilled) and the improved facilities for earning at piece-rates. It indicates the importance of these considerations for this country and confirms the emphasis laid on these factors in the resolutions adopted by the last Conference. The two corresponding series available for the U.S.A. do not indicate this difference ; in fact the index number of rates of wages is higher than that of earnings. This is probably due to the fact that the two series are not compiled in the same way as the British series. The index of union scales is limited to a few occupations of skilled workers, chiefly in baking, building, printing, and publishing, laundry, and transport. In some of these the increase in rates has probably been higher than the average. On the other hand, the index of earnings is limited to certain manufacturing industries and does not include mining, transport, agriculture. Moreover the " general average " is obtained by applying to the average for the different industries constant weights proportionate to the importance of each industry as shown by census of manufactures of 1919. The movement of workers from one industry to another is therefore not allowed for since 1919. It seems probable that, were the two American series based on more complete figures and compiled in a similar way to the two British series, a similar difference (in direction though not in degree) might be observed to that in the two British series.

Conclusion : In the short time available, it has been impossible to give more than a brief summary of the existing index numbers of wages. It will be seen that such figures exist for the majority of the industrial countries, though the differences in scope, comprehensiveness, adequacy and methods of compilation are numerous and important. It would be invidious to classify these index numbers into good, indifferent, or bad, especially as for many of the series complete information as to methods, scope, etc., is not published, but a perusal of the detailed notice on each country in the *International Labour Review* July 1929 and January 1930 will indicate that in many cases there is considerable room for improvement. It is hoped that the deliberations of the Conference will enable further progress to be made in this sphere.

APPENDIX

LIST OF COUNTRIES COMPILING GENERAL INDEX NUMBERS WHICH GIVE SEPARATE SERIES FOR INDUSTRIAL GROUPS AND FOR AGRICULTURE.

Country	*Number of Industries*
Germany	12 Industrial Groups (including Coal Mines and Railways).
Australia	14 Industrial Groups (including Mining, Transport and Agriculture).
South Africa	10 Industrial Groups or Occupations (including Mining, Transport and Commerce).

Canada	6 Industrial Groups (including Steam Railways and Coal-mining). *Agriculture.* Separate series for men and women.
Denmark	13 Industrial Groups or Occupations including Commerce and Transport.
France	38 male and 7 female Occupations in small industry for towns outside Paris and 21 male occupations in Paris.
Estonia	14 Industrial Groups (including Mining, Electricity, Gas and Water Supply).
Finland	15 Industrial Groups (including Mining and Electricity, Gas and Water Supply).
Great Britain	*Rates.* Most Industrial Groups including Agriculture.
New Zealand	14 Industrial Groups (including Mining, Agriculture and Transport).
Poland	19 Industrial Groups (including Mining).
Rumania	15 Industrial Groups (including Mines, Transport, Commerce and Agriculture).
Sweden	All Industrial Groups (including Mining, Transport, Commerce and muncipal Services).
Switzerland	Principal Manufacturing Industries.
Czechoslovakia (Prague)	32 Industrial Branches including Commerce.
U.S.A.	*Union Scales.* The chief occupations in Building, Baking, Printing and Book Publishing, Stone Working, Laundry and Transportation. *Earnings.* 25 Manufacturing Industries. *Agriculture.* Separate index of male Agricultural earnings.
Italy	*Industry in General*—11 groups including Mines, Public Services, and Agriculture. *Manufactures*—24 Industries. *Agriculture*—Maximum and minimum rates for men, women, and children, and for mountain, hill, and plain, and for ordinary work and special work.

REPORT ON THE EXISTING WAGE AND COST OF LIVING MATERIAL IN CANADA, FRANCE, GERMANY, ITALY, THE UNITED KINGDOM, AND THE UNITED STATES

BY JOHN JEWKES

INTRODUCTION

FOLLOWING the suggestions which were made by the Second Conference in May, 1930, the sections and tables in this part of the report have been drawn up with a threefold end in view. In the first place it was thought that it would be of convenience for students of wage questions to have ready access to a representative group of statistics relating to wages and cost of living in the countries under review, together with a detailed explanation of the manner of their compilation. In matters of international wage comparisons it seems probable that the rapidity with which new material is becoming available is tending to outstrip the methods of dealing with it for the purpose of comparisons of this kind and, in any case, the enlarged supply of national statistics compiled in an endless variety of ways is so increasing the complexity of comparisons between one country and another that it is becoming increasingly necessary to turn back constantly to the precise nature and source of any series of figures.

In the second place, it was felt that the presentation of such statistics would provide practical illustration of the immense diversity of the methods employed in these six countries in the collection and presentation of their wage and cost of living data and make clear, by example, the tremendous difficulties of detail which face those who attempt to use the material as published for the purposes of international comparison.

Thirdly, in order to clear the field for further work upon international comparisons, it was important to know how far it was practicable at the moment to construct indices of wage movements in each country for the post-war period, how far such indices were of a sufficiently similar nature to enable a reliable comparison of *movements* of wages in the different countries to be made and how far the existing national material could be utilized to construct an index of hourly earnings in industry generally, similar to that which has been devised for the United States.[1]

The general conclusions which emerge from a close study of the statistical material contained in this part of the report can best be dealt with under these several headings.

[1] See p. 241.

I. THE DIVERSITY OF THE EXISTING WAGE MATERIAL.

In an earlier part of this volume[1] reference is made to the numerous differences of detail in scope, comprehensiveness, methods of collection and manipulation of the wage statistics of different countries, which would necessarily have to be allowed for in any valid comparison between one country and another. A close examination of such difficulties in the case of the six countries under review brings certain of these diversities into greater prominence and magnifies the problems involved in making adjustments for them.

There is, in the first place, a problem which is largely technical. There can be, at the moment, no guarantee that the same occupational or industrial terms refer to exactly the same economic activities in different countries. Perhaps the clearest example of this is provided by the cotton industry, for it happens that in the United Kingdom a male, or even a female, spinner is usually engaged on "mule" spindles whilst in other countries the ring spindle is more commonly used. A crude comparison of spinners' wages in different countries would, therefore, be quite meaningless since what is required, for many purposes, is not a comparison of the wages of workers producing the same material, irrespective of the method of production, but of the wages of those engaged roughly in the same mechanical operations. Even where there is uniformity in mechanical operation, wages can and do vary with the nature of the product. Wages in the Lancashire cotton industry may rise, for example, not through any actual changes in what is paid for a given operation but through an increase in the amount of finer goods turned out. Where, therefore, changes of this sort are going on at different rates and in different directions in a number of countries, crude comparisons which ignore developments of this sort might well lead to wrong conclusions. The example drawn from the cotton industry has counterparts in other industries. Technical methods do not show an international uniformity, industrial and occupational classifications must always be approximate and necessarily contain operations of a very varied type. Thus, for example, the figures of earnings in the Paris Region for fitters[2] are an average for 27 different types of

[1] See Introduction by Henry Clay.
[2] See p. 174.

engineering construction. It follows, therefore, that if international comparisons are to be made of what is paid for certain types of *work* as distinct from what is paid to those producing certain types of *product*, a great deal of research in the establishment of international uniformity in technical terminology must precede them.

A second problem, akin to, but less fundamental than the first, is that the material in each country, even where it refers to exactly similar types of work and product, is presented in a form which makes it impossible to extricate from the international tangle what is common to two or more countries. An example will make this point the clearer. A census of manufactures is taken annually in Canada[1] and biennially in the United States.[2] In each case the total wages paid throughout the year in each industry and sub-group are collected, the number of operatives employed at the end of each month is obtained and the annual average earnings per head for each industry can be ascertained. At first sight it appears that this would provide an accurate method of comparing annual earnings since the two countries have many similarities in industrial structure and the basis upon which the statistics are collected seems to be roughly the same. It is true that the Canadian census includes all establishments and that of the United States only those with an output greater than 5,000 dollars. It is also true that there can be no certainty that the distinction between " salaried " and " wage earners " is the same in both countries. Neither of these differences, however, is likely to produce any great error. But when an attempt is made to compare annual earnings in specific industries the absence of any uniformity in the demarcation of important industries makes this extremely complicated and hazardous. Among many other examples the following cases of inextricable overlapping or of an entanglement of terms which only careful research by the officers of the Census Office themselves could simplify may be mentioned. They are extracted from a special memorandum of the Canadian Dominion Bureau of Statistics prepared for the use of the Conference.

" The Bread and other Bakery Products Industry in Canada is limited to concerns engaged primarily in the baking of bread and other products. Concerns engaged primarily in the manufacture of biscuits and confectionery (including concerns engaged primarily in the manufacture of chewing gum and ice cream) are listed separately. In the U.S. Census of Manufactures, the industry ' Bread and other Bakery Products ' includes all establishments engaged

[1]See p. 154.
[2]See p. 95.

primarily in the baking of bread, biscuits, crackers, cakes, pastry, etc., but does not include those engaged primarily in the manufacture of confectionery, chewing gum or ice cream."

* * * *

"The 'Sugar Refining Industry' in Canada covers all concerns engaged primarily in the refining of sugar and its by-products, whether from beets or from cane. In the U.S. Census of Manufactures there are separate industries for 'Beet Sugar,' 'Cane Sugar' and 'Cane Sugar Refining,' all of which must be included in any comparison with the 'Sugar Refining Industry' of Canada."

* * * *

"The 'Flour-Milling Industry' in Canada includes all establishments making flour and feed as their principal product. There is another industry for 'Miscellaneous Food Products' which includes establishments making prepared cereal foods as their principal product. The U.S. Census of Manufactures also has a 'Flour, Feed and Other Grain-Mill Products' Industry, and a 'Food Preparations not Elsewhere Classified' Industry, but the line of demarcation is not quite the same as in Canada. The Canadian Census of Industry includes in its classification of the 'Flour Milling Industry,' establishments making rolled oats as their principal product, regarding it as a grain-mill product rather than a prepared cereal food, whilst the U.S. Census of Manufactures includes such establishments in their 'Food Preparations, not Elsewhere Classified' Industry."

* * * *

'The Cotton Textile Industry' in Canada is a group of five separate industries, as follows:

1. Cotton Yarn and Cloth.
2. Cotton Thread.
3. Cotton Batting and Wadding.
4. Cotton and Wool Waste.
5. Cotton Textiles, N.E.S.

The similar group of "Cotton Manufactures" in the U.S. Census of Manufactures is as follows:

1. Cotton Goods.
2. Cotton Small Wares.
3. Cotton Laces.

Cotton Yarn and Cloth. The principal products under this heading in Canada are yarns (grey, bleached and dyed), cotton fabrics (bleached and unbleached—printed, dyed, etc.), cheesecloth, tire fabrics, cotton waste, elastic and non-elastic webbing, etc., whilst listed in "all other products" under this industry are concerns producing oilcloth, linoleum, hammocks, etc., listed as separate industries in the U.S. Census of Manufactures, but owing to the operation of the secrecy clause of the Statistics' Act in Canada placed in a general total to avoid revealing the business of any individual concern. The principal product of the U.S. "Cotton Small Wares" Industry is included in the "Cotton Yarn and Cloth" Industry in Canada.

Cotton Thread. Concerns in Canada producing cotton thread are shown as a separate industry in the Canadian Census of Industry. In the U.S. Census of Manufactures, producers of cotton thread are included in the industry of "Cotton Goods."

Cotton Batting and Wadding. In Canada these concerns are shown under a separate heading. Similar concerns are included in the "Cotton Goods" Industry in the U.S. Census of Manufacture.

Cotton and Wool Waste. In Canada these concerns are shown as a separate industry. Similar concerns are included in the "Cotton Goods" Industry in the U.S. Census of Manufactures.

The U.S. Census of Manufactures also reports on the "Cotton Laces" Industry separately. There are no concerns manufacturing cotton laces in Canada as a principal product, and any manufacturing it as a by-product would be included in the "Women's Factory Clothing" Industry in Canada.

* * * *

The "Woollen Textile" Industry in Canada is a group of four separate industries as follows:

1. Woollen Cloths.
2. Woollen Yarns.
3. Carpets, Mats and Rugs.
4. Woollen Goods, N.E.S.

The similar groups of "Wool Manufactures" in the U.S. Census of Manufactures includes the following industries:

1. Woollen Goods.
2. Worsted Goods.

3. Wool Carpets and Rugs, other than rag.
4. Wool or Hair Felt Goods.
5. Wool-Felt Hats.

The U.S. Census of Manufactures has two separate industries for woollen and worsted cloths and yarns, but classifies them according to whether the principal product is woollen or whether it is worsted. The Canadian Census of Industry, however, separates the manufactures of woollen and worsted cloths and yarns into two industries according to whether the principal product is cloth or yarn. To make a comparison, therefore, it will be necessary to consider both industries in each country.

Carpets, Mats and Rugs. In Canada this group constitutes a separate industry. The U.S. Census of Manufactures has a similar industry but excludes from its classification the manufacture of rag carpets and rugs and jute carpets and rugs, which are shown as separate industries. These are included, however, in the Canadian Census of Industry in its " Carpets, Mats, Rugs " Industry, as above.

The Woollen Goods N.E.S. Industry in Canada covers the concerns shown in the " Wool or Hair Felt Goods," the " Wool Scourings," the " Wool Pulling," and the " Wool Shoddy " Industries in the U.S. Census of Manufactures. The " Wool-Felt Hats " Industry, included in the " Wool Manufactures " Industry of the U.S. Census of Manufactures is covered in the " Hat and Cap " Industry in the Canadian Census of Industry.

* * * *

" The ' Women's Factory Clothing ' Industry in Canada comprises women's clothing, ladies' and children's wear, women's neckwear and fancy goods, embroidery and trimmings, laces, tapes and bindings. The ' Clothing, Women's, not Elsewhere Classified ' Industry in the U.S. Census of Manufacture includes manufactures of women's clothing and ladies' and childrens' wear, but manufactures of women's neckwear and fancy goods, embroidery and trimmings, laces, tapes and bindings, also included in the Canadian ' Women's Factory Clothing ' Industry and comprising 81 establishments out of a total of 385, are classified under ' Millinery and Lace Goods, not Elsewhere Classified,' in the U.S. Census of Manufactures. As stated above under ' Cotton Manufactures,' cotton lace factories are listed separately under this industry in the U.S. Census of Manufactures."

* * * *

" The ' Automobile Industry ' in Canada includes all establishments manufacturing as principal products motor-propelled four-wheeled vehicles, such as passenger cars, commercial automobiles or trucks, automobile chassis, etc. The corresponding industry in the U.S. Census of Manufactures is ' Motor Vehicles,' but it is reported under the group heading of ' Transportation Equipment,' whilst the Canadian Census of Industry reports the 'Automobile Industry ' under ' Iron and Steel and their Products.' "

* * * *

" The ' Ship and Boat Building ' Industry in Canada is divided into two sections, chiefly for the purpose of separating the building of large steel vessels and dry dock work from the building of smaller wooden vessels and pleasure craft. The former is listed as the ' Ship Building ' Industry in Canada, under the group heading of ' Miscellaneous Industries,' whilst the latter is listed as the ' Boat Building Industry ' in Canada, under the group heading of ' Wood and Paper Products.' The corresponding industry in the U.S. Census of Manufactures is the ' Ship and Boat Building ' Industry, listed under the group heading of ' Transportation Equipment,' and divided into two branches of steel shipbuilding and of wooden ship and boat building."

* * * *

" The ' Railway Rolling Stock ' in Canada includes thirty-five firms in Canada engaged in the manufacture of new cars, engines and parts, as well as the work done in the larger repair shops. The corresponding industry in the U.S. Census of Manufactures is ' Cars, Steam and Electric Railroad, not build in Railroad Repair Shops,' listed under the group heading of ' Transportation Equipment,' whilst the Canadian Railway Rolling Stock Industry is reported under the group heading of ' Iron and Steel and their Products.' The Railway Rolling Stock Industry in Canada also includes new stock built in railway repair shops, whilst the similar U.S. industry is exclusive of products of railroad repair shops."

* * * *

" The ' Sawmilling Industry ' in the Canadian Census of Industry corresponds with the ' Lumber and Timber Products,' Industry of the U.S. Census of Manufactures, except that it includes logging camps, and excludes independent shook mills and pulp wood barking mills."

"The 'Printing and Publishing' Industry in Canada most nearly corresponds to the third branch of the Printing and Publishing Industry of the U.S. Census of Manufactures, relating to 'Newspapers and Periodicals,' but the latter includes concerns which are publishers only, whilst the Canadian Printing and Publishing Industry includes only concerns that engage in actual printing. Similarly, the 'Printing and Bookbinding' Industry in Canada approximates that of the first branch of the Printing and Publishing Industry in the U.S. Census of Manufactures relating to 'Book and Job Printing,' but the latter also includes concerns which are book publishers only, and these are excluded from the Canadian industry. The U.S. Census of Manufactures has a separate industry of 'Bookbinding and Blank-book Making' not included in its 'Printing and Publishing' Industry, but similar establishments in Canada are included in the 'Printing and Bookbinding' Industry. There are no concerns in Canada specialising in music publishing, although some concerns included in the 'Printing and Publishing' Industry publish music as a side line. These concerns, however, do not print the music, which is done for them by concerns classified under the 'Lithographic and Engraving' Industry in the Canadian Industrial Census, but separate statistics are not shown for music printed due to the secrecy clause of the Statistics' Act.

In the face of conditions such as these it seems that the adoption of some measure of international uniformity in industrial and occupational groupings would be an even more important step forward than the extension of the existing wage material.

To sum up: the diversity of wage statistics in different countries is the result of three factors. The countries collect different *sorts* of information and even the most superficial examination of the tables which follow will make this endless variety patent. In addition, by adopting different *forms of presentation* they cloak similarities even when they exist. And finally they throw what appear to be international similarities into grave doubt by the failure to adopt a uniform code of industrial and occupational groupings.

II. THE POSSIBILITY OF CONSTRUCTING WAGE INDICES IN EACH COUNTRY.

In each of the countries under review it is possible to obtain an index which throws light upon general wage movements in the country since 1924. But the value and reliability of these indices vary widely. In France,[1] there is an index of wage rates in the smaller, non-localised industries and supplementary material for earnings in coalmining and engineering in the Paris district. Important sections of industry, however, notably textiles and railways, provide no information at all. In Germany[2] the continuous index is necessarily one of rates and, although it is extremely comprehensive and reliable as far as it goes, there is evidence to suggest that it diverges in level and perhaps in movement from earnings. Further, there is no total index, separate indices being calculated for skilled and

[1]See p. 168.
[2]See p. 187.

unskilled persons. In Canada[1] a wage rate index is supplemented by statistics of annual average earnings in manufacture and special series for coalmining and railways. In the United States[2] various indices have been calculated but, generally speaking, hourly earnings are the most reliable bases for continuous series. In the United Kingdom[3] only wage rate indices are available, although in one or two separate industries earnings figures are to be found and the wage rates can be trued up, from time to time, by earnings censuses. In Italy[4] the only continuous indices for the period 1924-30 relate to individual towns.

It is worthy of notice, however, that in future the indices in two of these countries will be more comprehensive than in the past. In Italy a special index of hourly earnings in manufacturing industry has been in existence since 1928 and has been supplemented by regular earnings censuses. And in Germany special machinery has been set up for the carrying through of periodical earnings censuses in such a form that the wage rates indices can be adjusted by them.

A minor difficulty which presents itself in the comparison of the movements of wages in different countries is that of the choice of base year. Each year has certain drawbacks. The use of a pre-war base is undesirable since changes in national boundaries have taken place and, in any case, the pre-war statistics are extremely scanty. So far as Germany is concerned no year before 1924 is suitable, for the inflation period robbed wages and cost of living data of all significance, and even in 1924 the results of inflation were to be seen in abnormally low wages which rose quite rapidly in the following two or three years. In 1926 there were prolonged strikes in Great Britain which have made a break in some of the wage series. The year 1925 has certain claims since the Biennial Census of Manufactures was taken in the United States and a Census of Earnings was carried through in Italy. On the other hand, certain important Italian indices did not commence until 1928. On the whole, however, 1924 seems to be the most suitable base for the six countries under review. The year was one of mild prosperity in most of them; a number of standard indices, such as the Bowley index, are based on this year; a wage census was taken in Great Britain and it was not until 1924

[1]See p. 152.
[2]See p. 240.
[3]See p. 217.
[4]See p. 205.

that the Statistique Générale began its annual enquiry into wages. In most of the tables which follow the year 1924 has, therefore, been adopted as base.

III. THE POSSIBILITY OF CONSTRUCTING A GENERAL INDEX OF HOURLY EARNINGS IN INDUSTRY IN EACH COUNTRY.

For purposes of international wage comparisons the use of indices of average hourly earnings has many advantages. The unit of time is definitely fixed and thus the difficulties of differences between normal hours of work are avoided. It is simple to embody within hourly earnings special payments such as that for overtime or bonuses. And wherever average hourly earnings are determined for any one body of workers, since the total wages paid and total hours worked are necessarily known, it is always possible to combine these in a weighted average with the hourly earnings relating to other bodies of workers. In short, the use of hourly earnings in international comparisons automatically eliminate many of the most awkward difficulties in similar comparisons based on wage rates. It was for reasons such as these that the Second Conference suggested that it should be ascertained how far an index of average hourly earnings in General Manufacture, Coalmining, Steam Railways and Building could be constructed for each country from the existing national material. It may be said at once that, under present conditions, an index even roughly comparable to that prepared for the United States is not practicable for most of the countries under review.

One general drawback to a comparison of this kind, even if earnings statistics were available, would be the varied nature of the economic systems of the different countries. Canada, France, Germany, Italy, the United Kingdom and the United States are all countries which show well marked industrial development. They probably represent, from the economic point of view, as homogeneous a group of nations as could be found. And yet an examination of the structure of each shows how widely they differ in the general nature of their economic activity. In the table below the proportions of the total occupied population in the different branches of production are shown for each country.

PERCENTAGE DISTRIBUTION OF OCCUPIED POPULATION IN CANADA, FRANCE, GERMANY, ITALY, UNITED KINGDOM AND THE UNITED STATES*

	(1) Canada	(2) U.S.A.	(3) Italy	(4) United Kingdom	(5) Germany	(6) France
Agriculture, Fishing, etc.	35.0	26.3	56.1	6.8	30.5	41.5
Mining and Quarrying	1.6	2.6	.6	7.5	3.2	1.5
Industry	26.9	30.8	24.0	39.7	38.1	28.4
Trade	13.0	10.2	6.4	13.9	11.7	10.4
Mercantile Marine ..	.7	.4	4.0	1.9	.5	.3
Other Transport and Communications ..	7.1	7.0		5.1	4.2	5.9
Army and Navy ..	.2	.5	2.0	6.5	.4	2.0
Public Administration	2.8	1.3	1.5		2.0	2.6
Liberal Professions ..	6.0	5.2	3.0	4.4	4.1	3.5
Domestic Service, etc...	6.7	8.2	2.4	11.8	4.4	3.9
Unspecified	—	7.5	—	2.4	.9	—
TOTAL ..	100.0	100.0	100.0	100.0	100.0	100.0

(1) Year 1921. Occupations of those 10 years and above.
(2) Year 1920. Occupations of those 10 years and above.
(3) Year 1921. Occupations of those 10 years and above.
(4) Year 1921. Occupations of those 10 years and above. Industrial classification.
(5) Year 1925. Occupations of those 10 years and above.
(6) Year 1921. Industrial Classification.

*Taken from the League of Nations' " International Statistical Year Book," 1929. It need hardly be explained that such a comparison makes no claim to detailed accuracy. The different classes have different meanings in different countries ; some countries adopt an occupational, others an industrial classification and the constitution of the group of people taken for classification varies between countries. But the broad distinctions suggested by the table are undoubtedly true.

The wide variations in the relative importance of industry and agriculture are perhaps the most important of the many international differences to be found in this table. The full significance of such conditions only becomes fully apparent when the almost complete lack of wages in agriculture and distribution are taken into account. Ideally, if a comparison of wages in different countries were being carried through in order to throw light upon the standards of living in them, the wages of all branches of employees should be taken into account. But, in the case of the six countries under survey, only wages in industry proper are at all comprehensive. Statistics of wages paid in commerce and distribution are almost non-existent and although wage data of agricultural workers exists in a number of these countries[1] yet the interpretation of it is extremely difficult because of the complexity of allowing for payments in kind and

[1]See pp. 40, 76, 83, 89.

differences in methods of cultivation. The comparison of earnings merely in industry, therefore, whilst it represents the most which can be hoped for in the international field for a number of years, would represent an unequal slice in different countries of those conditions which determine the standard of living. Even within the industrial group chosen above the four main sections show widely varying importance. Italy has no coalmining of significance. In the expanding countries, such as Canada and U.S.A., the building industry is much more important than in the older. Steam railways are only one form of many alternative forms of transport and its relative importance might well differ from one country to another.

In fact, however, earnings statistics at the moment are not nearly adequate for the construction of such indices. In Canada, hourly earnings are available only for steam railways and, by estimate, for coalmining and the indices of wage rates cannot be adjusted to earnings since both the annual and the decennial censuses provide only annual earnings. In France, hourly earnings can be calculated, within a small percentage of error, in coalmining and are available for the engineering industry of Paris but no other earnings material exists. In Great Britain the wage rates indices can be adjusted by the periodic earnings censuses but that is the nearest approach that can be made to an hourly earnings index although earnings per shift are published for coalmining and reliable weekly earnings for wool and railways. In Germany the same general position exists. In Italy the hourly earnings index supplies the nearest approach to the index which has been constructed for the United States but even here there are many important differences, the most obvious being that (1) the American index includes hourly *rates* and not earnings in building whilst the Italian is based wholly on earnings; (2) the composite Italian index covers agriculture, quarrying and public utilities in addition to details for industry proper but these could presumably be eliminated; (3) the Italian index is a chain index, it is designed to measure *movements* rather than *levels* of earnings. The American material is intended to measure both; (4) the Italian index covers 60 per cent. of the workers, the American about 20 per cent.; (5) the Italian index is based upon total monthly

earnings, the American upon earnings in the first full week of each month.

The scarcity of earnings statistics would not be so serious if it could be assumed that the level and movements of rates corresponded closely with those of earnings. It is extremely difficult, with the existing material, to make valid comparisons of earnings and rates. But it appears that, where this is possible, the level of the two may diverge widely at the same moment. Thus, in perhaps the most complete comparison of this sort, hourly earnings and rates in a number of German industries show marked disparities. [1]In Railways in the United Kingdom this is also the case.[2] Even so far as movements over a period are concerned there is no exact coincidence. In Steam Railways and Coalmining in Canada,[3] Engineering in the United Kingdom,[4] and Coalmining in Germany[5] the movements show significant divergencies. The use of indices of wage rates, over a long period, unchecked by statistics of earnings, may produce a distorted picture of the real changes in the economic position of the wage earner, although in some cases the fixity of relation between hourly wages and earnings is marked.[6]

If, therefore, it is to be possible in the future to make international comparisons based on hourly earnings, the countries concerned must collect their material with a greater regard for international uniformity than at present. It is true to say that although in many countries more earnings statistics are now collected than ten or twenty years ago, yet the possibility of making comparisons has not been noticeably increased. Each country naturally adopts that procedure which its own particular circumstances and needs dictate and the consequence is that it has become almost impossible to make adjustments for the infinite variety in the collection and preparation of earnings indices. To take one or two outstanding cases of this variety. The censuses of earnings carried through in Germany are in respect of special age groups in each industry and occupation, for which no counterpart can be found elsewhere. The two-monthly index of earnings in Italy does not differentiate for sex or age and thus vitiates a possible comparison with a similar index in another country where the sex or age distribution in industry

[1]See pp. 193-200.
[2]See p. 221.
[3]See p. 154.
[4]See p. 220.
[5]See p. 191.
[6]See p. 194.

is very different. In Canada, the only earnings are per annum, which again do not differentiate by age and sex, and no information is available regarding the building trades, which are of extreme importance there. In the United Kingdom comparisons of the results of the 1924 and the 1928 censuses are made difficult by a change in the methods of collection of the information.

IV. COST OF LIVING INDICES.

The section dealing with the cost of living indices shows the same variety of methods from one country to another. To some degree this is only to be expected since habits of consumption vary greatly and the methods of compilation of statistics will necessarily reflect this. The outstanding fact, however, in these six countries, is that the actual methods of weighting the different items included are not based upon recent and detailed studies of the consumption habits of the working classes but upon estimates which are centred around fragmentary and often out-of-date budget investigations. In the United Kingdom the results of a 1904 enquiry and in the United States those of a 1918 enquiry are utilised. In Germany the present weighting is a theoretical modification of 1907 conditions. In Canada there is little exact information of family budgets. In Italy again, the weights are largely theoretical and the continuous indices 1921-31 relate only to individual cities. In France the cost of living index for Paris is the most reliable but there has been no recent enquiry into working-class family budgets.

It is, of course, true that once a series of weights have been fixed which are only approximately correct, price changes have a much greater influence upon the movement of a cost of living index than any modification of the weights would produce. Nevertheless, there is a very wide field for the improvement of the existing indices by the establishment of weights upon a scientific basis.

CANADA

WAGE STATISTICS

THE statistics of wages in Canadian industry are comprehensive both as regards wage rates and annual average earnings. The wage rates statistics, however, whilst they are fairly complete for building, printing, electric and steam railways and coalmining, are based upon a rather small sample of occupations in the metal trades and a small sample of establishments in the group of miscellaneous factory trades. For figures of earnings, the annual census provides complete details of annual average earnings for workers, taking all ages and both sexes together, in general manufacturing and a number of smaller ancillary industries. No earnings statistics are available for the construction group, a very important source of employment in Canada. In addition, the average earnings per shift in coalmines and the hourly earnings of railway employees are published. Outside coalmines and railways, however, there is very little information directly available concerning average hourly earnings. The following tables summarize the important published material for the years 1921–1930.

I. Wage Rates

The scope and methods of collection of the material available upon wage rates are outlined elsewhere.[1] The index numbers, there referred to, are shown in Table I. but with the base year changed to 1924. In general, they relate to September of each year but in the case of building they refer to the prevailing rates for the building season beginning in the spring of each year.

TABLE I.

INDEX NUMBERS OF RATES OF WAGES FOR VARIOUS CLASSES OF LABOUR IN CANADA. 1921-1930.
(1924=100)

	(1) Building Trades	(2) Metal Trades	(3) Printing Trades	(4) Electric Railways	(5) Steam Railways	(6) Coal Mining	(7) Average Cols. (1) to (6)	(8) Common Factory Labour	(9) Miscellaneous Factory Trades	(10) Logging and Saw Mills
1921	100·5	106·4	100·7	103·1	105·1	108·3	104·1	104·0	102·2	83·3
1922	95·8	99·0	100·2	98·9	98·9	102·8	99·3	99·9	95·7	86·7
1923	98·1	99·1	98·4	99·9	100·0	102·8	99·8	99·2	99·2	93·1
1924	100	100	100	100	100	100	100	100	100	100
1925	100·4	99·9	100·5	100·8	100·0	87·1	97·8	101·7	98·9	97·6
1926	101·4	101·1	100·7	101·1	100·0	87·0	98·3	102·2	99·5	98·7
1927	105·7	101·5	101·6	101·9	106·4	87·3	100·3	102·5	100·9	99·8
1928	109·4	102·6	103·3	104·1	106·4	87·8	102·0	102·1	101·7	100·6
1929	116·4	105·2	105·4	106·5	109·6	87·8	104·9	102·5	102·3	101·4
1930	119·7	106·3	105·9	107·0	109·6	88·1	105·8	102·7	102·4	100·4

The following notes may be regarded as supplementary to the information already given of the nature of this material:

Col. 1. The figures are hourly rates for the following cities: Halifax, St. John, Quebec, Montreal, Ottawa, Victoria, Toronto, Hamilton, Winnipeg, Regina, Calgary, Edmonton, Vancouver, and (for the last two years) Windsor. The information covered eight classes of workers 1921–26, and nine 1927–30. In 1930 these were: bricklayers, carpenters, electrical

[1]See p. 38.

workers, painters, plasterers, plumbers, sheet metal workers, stone-cutters, labourers. The rates are for the building season beginning in the spring of each year. The average for each year of the different classes of labour is a simple arithmetic average. The figures for the cities are brought together in a simple arithmetical average for the formation of the national index.

Col. 2. The figures are hourly rates for the first thirteen cities above. Five trades included up to 1926, four 1927–30. In 1930 these were: blacksmiths, boilermakers, machinists, iron moulders. Weighting as in Col. 1.

Col. 3. The figures are weekly rates for the thirteen cities of Col. 2. Four trades included 1921–22, six 1923–30. In 1930 these were: news compositors, machine and hand; job compositors, machine and hand; news pressmen; job pressmen; book binders; bindery girls. Weighting as in Col. 1.

Col. 4. The figures are hourly rates for thirteen cities. Five classes of workers 1921–30. These were: conductors and motormen, linesmen, shedmen, electricians, trackmen and labourers. Weighting as in Col. 1.

Col. 5. "In steam railways, wages of employees on the regular staffs are fixed according to agreement between the several railways and the organisation of railway employees, the principal railways having the same rates for nearly all the principal classes. The figures published are taken from these agreements." Twenty-three classes of workers included: conductors (passenger and freight); brakemen (passenger and freight) locomotive drivers (passenger and freight) locomotive firemen (passenger and freight) telegraph service (tram dispatches, agents operators); maintenance of way (foremen in yard and on line, sectionmen in yard and on line); machinists, blacksmiths, boilermakers, moulders, carpenters, painters, car repairers, cleaners. Rates are, for some classes, based on mileage; for some others, per month, but the majority, per hour.

Col. 6. Daily wage rates fixed by agreement between operators and employers in Nova Scotia, Alberta and Vancouver Island. In some of the mines in each district the wages of unorganised employees are somewhat lower than in such agreements. Twelve classes of workers included: contract miners, machine miners, hand miners, hoisting engineers, drivers, brakemen, pumpmen, labourers (underground), labourers (surface), machinists, carpenters and blacksmiths. For most classes of workers rates are per day, and usually for September of each year, but in case of contract miners the figure of average earnings per day on contract are taken, and for machine and hand miners the figure employed is the minimum rate per day when not working on contract, per ton, yard, etc. This index is, therefore, in some degree, an index of earnings. Weighting is by simple arithmetical average.

Col. 7. Simple average of six preceding columns.

Col. 8. Simple average of predominant hourly, daily or weekly rates in factories in all parts of the Dominion. In 1930 the number of factories taken was 90.

Col. 9. Samples of hourly, daily or weekly rates for a number of occupations in a large number of industries. Each sample represents the predominant rate in a single establishment. Averaging without weighting. In 1930 samples taken in 39 different industries.

Col. 10. Samples of predominant rates for several occupations in a number of establishments in all parts of the Dominion.

The indices naturally vary in reliability from one group of occupations to another; those in the first five columns of Table I. are perhaps more reliable in recording movements of rates than those in the later columns. The following points must be borne in mind:

(1) The use of simple unweighted averages, both in the grouping of the different occupational classes into larger industrial categories, in grouping the indices for each town into national indices and in grouping the larger categories into a national average (i.e., Col. 7 in Table I.) will undoubtedly tend to give a bias to the movements recorded over a period. Thus, for example, building and steam railways are much more important, measured by numbers of employees, than coalmining or printing.

(2) "The classes of labour for which rates are used for the calculation of the indices in Table I. are, in the main, skilled trades and practically all of these, even the unskilled, are in most cities organised to a great extent in trade and labour unions. The statistics given in these tables, therefore, show wage rates and hours of labour in a number of organised occupations in certain cities."

If there have been differences between the movements of wage rates in and outside large industrial centres or in organised and unorganised occupations then the indices may fail to record true movements in particular industries and in industry as a whole.

(3) Although in most cases full-time hourly rates are given, in some cases, notably in some coalmining and steam railway occupations, the statistics reflect earnings as well as rates.

(4) Hourly wage rates only throw indirect light upon hourly, weekly, or yearly earnings, and, in the two cases in which a satisfactory comparison can be made between the movements in rates and earnings the two show fairly wide divergencies. The table below makes this comparison for coalmining and steam railways in Canada.[1]

	Steam Railways (*a*)		Coalmining (*b*)	
	Rates	Estimated Hourly Earnings (*c*)	Rates	Estimated Average Earnings per Hour (*d*)
1921	105.1	109.1	108.3	110.3
1922	98.9	100.7	102.8	92.2
1923	100.0	99.3	102.8	99.1
1924	100.0	100.0	100.0	100.0
1925 ..	100.0	100.2	87.1	98.0
1926	100.0	100.3	87.0	88.4
1927	106.4	103.2	87.3	89.5
1928	106.4	103.2	87.8	99.1
1929	109.6	105.0	87.8	97.7
1930			88.1	97.3

(*a*) The index of rates is based upon twenty-three classes of labour (see above p. 153) earnings upon all classes. The index of rates is for the month of September; that for earnings covers the whole year.
(*b*) Wage rates for twelve classes of labour (see p. 153); earnings for all workers.
(*c*) See p. 158.
(*d*) See p.157.

Some part of the difference in movements revealed is undoubtedly attributable to the different classes of workers included in each group and to the fact that the indices of rates are unweighted.[2] But the differences are too great to be wholly explained in this way and point to changes, such as changes in normal hours, in technique, etc., which inevitably produce discrepancies between the two classes of wage material over a period.

II. Earnings

1.—*General Manufacture.*

As explained above (p. 37) the statistics of actual earnings in general manufacture in Canada cover the whole of the factories known to be operating.[3]

[1]For a further example see Report of Sixth Census of Canada, 1921. Vol. III., p. 21.
[2]Thus, for example, in 1926, weighting changes the figure for wage rates on railways from 211.0 to 238.8.
[3]A number of the principal industries are shown below in Table IV.

Figures of total salaries and wages are given for each of the important industries and for manufacturing industry as a whole. By dividing these totals by the number of salary earners and wage earners the annual average earnings are obtained. The number of salary earners is that recorded once a year in the Annual Census of Industry, that for wage earners is the average number employed on the 15th of each month throughout the year. Table II. shows these figures.

TABLE II.

AVERAGE ANNUAL EARNINGS OF SALARY AND WAGE EARNERS IN MANUFACTURING INDUSTRY

(Dollars)

	Salary Earners		Wage Earners	
	Actual	1924=100	Actual	1924=100
1921	1819	99.3	1002	103.1
1922	1787	97.6	939	96.6
1923	1824	99.6	959	98.7
1924	1831	100	972	100
1925	1843	100.6	971	99.9
1926	1867	102.0	1003	103.2
1927	1899	103.7	997	102.6
1928			1024	105.4
1929			1045	107.5

The average annual earnings in different groups of industries are shown in Table III. :

TABLE III.

AVERAGE ANNUAL EARNINGS OF WAGE EARNERS IN DIFFERENT GROUPS OF INDUSTRIES

(Dollars)

Group	1921	1922	1923	1924	1925	1926	1927
Vegetable Products	879	863	869	929	871	872	900
Animal Products	916	877	721	792	743	770	776
Textiles and Textile Products ..	800	758	772	759	764	786	797
Wood and Paper Products ..	1046	979	1019	1047	1045	1085	990
Iron and its Products	1156	1088	1208	1151	1197	1231	1247
Non-Ferrous Metal Products ..	1096	1000	1009	1049	1157	1178	1198
Non-Metallic Mineral Products	1159	1210	1091	1130	1132	1141	1181
Chemical and Chemical Products	1030	913	956	965	975	985	1014
Miscellaneous Industries ..	1130	1116	1139	1160	1096	1081	1141

The average annual earnings for male and female workers together in the most important industries for which comparable material is available are shown in Table IV.

TABLE IV.

AVERAGE ANNUAL EARNINGS OF WAGE EARNERS IN A NUMBER OF LEADING INDUSTRIES

(Dollars)

Industry	1921	1922	1923	1924	1925	1926	1927
Pulp and Paper	1353	1145	1185	1247	1267	1302	1357
Flour and Grist Mill	1085	1086	932	1028	1005	970	993
Slaughtering and Meat Packing	1040	1083	1103	1110	1065	1101	1151
Automobiles	1458	1400	1500	1388	1577	1535	1580
Butter and Cheese	1076	1041	954	982	969	1002	956
Rubber Goods, including Footwear	852	901	949	954	1010	984	1016
Electrical Apparatus and Supplies	1091	948	957	1011	1010	1061	1070
Cotton Yarn and Cloth	718	677	689	616	652	702	755
Bread and other Bakery Products	1124	1094	1048	1095	1085	1069	1085
Printing and Publishing	1238	1135	1228	1343	1305	1365	1699
Sugar Refining	1132	1027	1222	1250	1193	1157	1203
Clothing, Women's Factory	1023	846	832	884	881	880	883
Cigars and Cigarettes	622	632	640	640	639	658	678
Hosiery, Knit Goods and Gloves	693	658	666	666	713	728	733
Biscuits, Confectionery and Chewing Gum	730	709	694	694	706	719	724
Breweries	1253	1111	1160	1201	1181	1186	1167
Boots and Shoes, Leather	747	855	843	853	844	883	871
Machinery	1256	1080	1135	1118	1138	1166	1174
Sheet Metal Products	1046	977	1010	1003	1013	1059	1064
Clothing, Men's Factory	1357	934	959	910	949	1009	986
Agricultural Implements	1193	985	1013	1083	1101	1178	1147
Printing and Bookbinding	1153	1109	1132	1131	1097	1156	1115
Furniture and Upholstering	1022	940	945	950	944	960	989
Leather Tanneries	952	984	986	1000	948	983	991
Fish Curing and Packing	588	603	208	245	266	290	280
Furnishing Goods, Men's	538	643	635	633	638	646	640
Coffee and Spices	858	844	830	864	856	877	929
Distilleries	1199	1145	988	1136	1102	1109	1208
Paints and Varnishes	996	940	971	932	934	977	998
Hardware and Tools	911	907	951	931	976	970	963
Brass and Copper Products	1073	1024	1024	1093	1115	1126	1128

2.—*Coalmining.*

The nature of the statistics of earnings in Canadian coalmines is explained above (pp. 42). Table V. gives the statistics as published in "Coal Statistics of Canada."

Only daily earnings are published in respect of coalmine workers but it is possible to estimate fairly accurately the average hours worked per day. The fixing of hours of labour in coalmining in Canada is within the competence of the provinces and the maximum hours of labour in Alberta, British Columbia and Novia Scotia are fixed at 8 per shift, although in the last-named province winding time is not included in this.[1] The hours of labour of underground workers,

[1]See "Wages and Hours of Labour in the Coalmining Industry," International Labour Office, 1927. p. 229.

TABLE V.

AVERAGE EARNINGS PER MAN PER DAY IN CANADIAN COALMINES
(Dollars)

	Actual	1924=100
1921	6.20	110.3
1922	5.18	92.2
1923	5.57	99.1
1924	5.62	100
1925	5.51	98.0
1926	4.97	88.4
1927	5.03	89.5
1928	5.57	99.1
1929	5.49	97.7
1930	5.47	97.3

as shown by the Department of Labour's Report on "Wages and Hours of Labour in Canada, 1920–30," remained unchanged at 8 per day during this period. For surface workers the same report shows that the *normal* working hours in Alberta and Vancouver Island were 8 per day and in Novia Scotia 8½ hours for a number of classes of surface workers. These figures, of course, would not include any overtime worked or time lost through the working of part days. Taking into account, however, the fact that the underground workers greatly outnumber the surface[1] there will probably be little error in assuming an 8-hour day for all workers taken together. These does not appear to be any information concerning payments in kind to workers in coalmines in Canada.

3.—Steam Railways.

The general nature of the statistics of earnings of the working force on steam railways in Canada is described above (p. 42). It is impossible to obtain a perfectly comparable series of hourly earnings since 1921 because of a break in comparability after 1925. For the years 1921–25 the average hourly earnings of all employees, including salaried workers and general and executive officers, were published. In 1926 a series of changes were made. In the first place the classification of occupations under steam railways was modified. Secondly, for the period 1926–30 hourly earnings were given only for a number of these occupations, not including salaried workers and general officers. In Table VI. below, an attempt has been made to construct a fairly comparable series by making two adjustments. The "general and executive officers'" classes have been eliminated for all the years in order to exclude the influence of their high salary rates. In addition an hourly earnings figure for the years 1926–29 has been constructed for all occupations by assuming an 8-hour day for all classes whose earnings are given only on a daily basis.[2]

[1]Thus in 1929 the number of surface workers was 6,323, that of underground, 21,904; the number of days' work done by surface workers was 1,736,000 and by underground workers, 5,381,000.

[2]The greater part of the employees, however, were paid on an hourly basis. Thus in 1929, of a total remuneration to all classes of employees of $67,000,000 the remuneration of these for whom hourly earnings are given amounted to $61,000,000.

TABLE VI.

ESTIMATED HOURLY EARNINGS OF ALL MALE EMPLOYEES ON STEAM RAILWAYS. 1921–29

(Dollars)

	Actual	1924=100
1921	.613	109.1
1922	.566	100.7
1923	.558	99.3
1924	.562	100
1925	.563	100.2
1926	.564	100.3
1927	.580	103.2
1928	.580	103.2
1929	.590	105.0

4.—*Construction.*

Prior to 1921 there was an Annual Census of Building and Construction industries in Canada but since then it has been discontinued and no figures of earnings are available.

COST OF LIVING STATISTICS

THERE are three distinct cost of living indices published in Canada.

1.—*Cost of Living Index prepared by the Department of Labour.*

This index is specifically designed to measure changes in the cost of living of working-class families in cities. In Table I. below it is shown for June of each year 1920–31 with June, 1924 taken as base.

TABLE I.

CHANGES IN COST OF LIVING

(1924=100)

June	Food	Fuel and Light	Rent	Clothing	Sundries	All Items
1920	172	103	87	157	99	131
1921	113	110	94	121	102	108
1922	104	102	97	103	102	102
1923	104	104	100	102	102	102
1924	100	100	100	100	100	100
1925	106	98	100	100	99	101
1926	113	99	99	98	98	103
1927	110	97	99	96	98	101
1928	109	97	99	98	98	101
1929	111	96	100	98	98	102
1930	113	96	101	97	98	103
1931 (*a*) ..	87	94	101	86	96	92

(*a*) May.

The methods of compilation are explained below.

Food Index : The food index includes the following amounts of 29 commodities :—

Beef Sirloin	2	lbs.	Potatoes	½	bag	Tea, Green	¼	lb.
Beef Shoulder	2	lbs.	Eggs, Storage	1	doz.	Vinegar	1/16	qt.
Veal Shoulder	1	lb.	Milk	6	qts.	Rice	2	lbs.
Mutton Roast	1	lb.	Butter Dairy	2	lbs.	Beans (hand picked)	2	lbs.
Pork Leg	1	lb.	Butter Creamery	1	lb.	Apples (evaporated)	1	lb.
Pork Salt	2	lbs.	Cheese, Old	1	lb.	Prunes (medium size)	1	lb.
Bacon Breakfast	1	lb.	Cheese, New	1	lb.	Sugar, Gran.	4	lbs.
Lard, Pure	2	lbs.	Bread	15	lbs.	Sugar, Yellow	2	lbs.
Eggs	1	doz.	Flour, Family	10	lbs.	Coffee	¼	lb.
Tea, Black	¼	lb.	Rolled Oats	5	lbs.			

These commodities represent the estimated weekly budget for a family of five but, for some articles, comparatively large quantities are included owing to the absence of other important items of the same class. The Department of Labour points out that " whilst the budget serves to show the increase or decrease from time to time in the cost of the items included, it does not purport to show the minimum cost of food for an average family in the Dominion or in any one province. The quantities of meats, dairy products, cereals, etc., included were adopted as affording a liberal supply for the healthy family of a man at hard physical work."

All prices are for delivered goods and every effort is made to ensure that the quotations in each case refer to the same class of commodity in order that the statistics may be available for purposes of comparison from month to month, city to city.

The prices used are averages for the Dominion. They are collected in 69 cities and a simple average taken for the whole country. The prices are secured from grocers, butchers, etc., the number of such butchers and grocers ranging from three in each of the towns of about 10,000 in population to ten in each of the cities of about 100,000 and twenty-five in Montreal and Toronto, which approach one million in population. For milk and bread, figures are secured from one or more representative dairies and bakers, prices being well standardised usually.

The weighting as between the different food items is automatically determined by the quantity allowed for each item. For each city the simple average of all quotations for each article is taken.

Fuel and Light Index : The items included are coal, anthracite and bituminous, wood, hard and soft, coal oil, gas and electricity. Except for the last two the prices are printed monthly in the *Labour Gazette* for each of the cities, being secured from representative dealers by the local correspondents. As prices are fairly well standardised one or two quotations only are secured with precautions to ensure that these are representative. The simple average for the Dominion is then taken and converted into an index number based on 1913 prices. For gas and electricity, prices are secured annually (or reported by the correspondent when a change occurs) and the cost of a monthly budget or bill for each is calculated, allowing for twenty-five kilowatt hours for electricity and three thousand cubic feet for gas. The systems of payment for these items vary

according to locality and are complicated, so that a monthly bill is the best means of reducing them to uniformity. An index number for each city is calculated from these monthly costs based on 1913 costs and the average for the Dominion made from these weighted according to population. To secure the group index number the index numbers for these items for the Dominion are then weighted as follows : anthracite coal, 25 ; bituminous coal, 20 ; hard wood, 7 ; soft wood, 5 ; gas, 6 ; electricity, 9 ; coal oil, 3.75 ; making a total of 75.75.

Clothing Index : The clothing index number was calculated from 1913 to 1927 from the prices of men's, women's, boys' and girls' clothing and boots, yard goods, etc., secured from dealers in various cities, the number reporting being upward of two hundred when this was begun in 1919 and falling to about one hundred by 1927. Index numbers for each item were calculated from the returns, each commodity index number being weighted by its importance in working men's family consumption as shown by a clothing budget for a working man's family. As the calculations were merely tentative pending a comprehensive cost of living investigation, the data was not published but the budgets constructed were similar to one published in the *Labour Gazette* for April, 1919, to show changes in cost of living for civil servants. Since 1927 the group index number has been adjusted from month to month by applying the index numbers to the Dominion Bureau of Statistics, which at that time constructed an index number of retail prices for all classes of persons. The index number of the Dominion Bureau of Statistics is described below (p. 163).

Rent Index : The houses included are six-roomed working men's houses (flats in Montreal) with modern conveniences, for which figures are published monthly in the *Labour Gazette* for 69 cities. The published figures, however, since 1913 were first revised in accordance with surveys covering from fifty houses in smaller cities to one thousand in the largest, begun in 1920, and in recent years confined to the larger cities, that is 50,000 and up, except when a special survey is considered desirable. An index number for each city is calculated and in constructing the Dominion average each is weighted according to population.

Sundries Index : Since 1927 this group figure has been adjusted from month to month by reference to the corresponding index number of the Dominion Bureau of Statistics. The Bureau's index contains many sub-groups, each of which is weighted to obtain the group index. The manner of its construction is described below (p. 165).

Weighting : In calculating the final index for all items the following weights are given to each group : Food, 35 per cent. ; Rent, 18½ per cent. ; Fuel, 8 per cent. ; Clothing, 18½ per cent. ; Sundries, 20 per cent. No comprehensive budgetary enquiries have been carried out in Canada and the weights are mainly estimates based upon numerous budgets reaching the Department from working men's organisations, social workers, etc. ; two or three special local enquiries made by Departmental officials (e.g., see *Labour Gazette*, December, 1928, p. 1,129), supplemented by the results of two investigations by the U.S. Bureau of Labour Statistics, 1901 and 1918–19.

Frequency of Compilation : For the years 1914–17 figures for June and December; 1917–27 for March, June, September and December; monthly since 1927.

Base Period : Published as 1913 = 100 but in Table I. above based upon June, 1924.

2.—*Cost of Living Index prepared by the Dominion Bureau of Statistics.*

In addition to the Ministry of Labour cost of living index number for the measurement of the trend of cost among the working classes, the Dominion Bureau of Statistics calculates an index of changes in cost of living[1] from a more general point of view, having for its object the measurement of such costs in the Dominion as a whole. This index is so constructed as to show the trend of cost of living of an average middle-class family with an expenditure of about $2,500 per annum. Such an index is, therefore, hardly suitable for the purpose of deflating wages but it gains importance, even from this point of view, from the fact that, as mentioned above, the movements of certain groups in the cost of living index prepared by the Department of Labour are now based upon the movements in corresponding groups in this index. Beyond this the Bureau's index is of great interest since the whole weighting system is based, not on budget studies, but on the estimated aggregate consumption of the different classes of commodities in Canada. The index was revised in 1926 and it is given below in Table II. with the figures for the years before 1926 recalculated, as far as possible, on the new basis.

TABLE II.

DOMINION BUREAU OF STATISTICS GENERAL COST OF LIVING INDEX NUMBER

(1926=100)

	Food	Fuel	Rent	Clothing	Sundries	Total
1921	107.9	109.2	94.2	124.7	106.0	109.2
1922	91.4	104.6	98.1	105.7	106.0	100.0
1923	92.1	104.6	100.6	104.4	105.3	100.0
1924	90.7	102.0	101.3	101.9	103.3	98.0
1925	94.7	100.0	101.3	101.9	101.3	99.3
1926	100.0	100.0	100.0	100.0	100.0	100.0
1927	98.1	97.9	98.8	97.5	99.1	98.4
1928	98.6	96.9	101.2	97.4	99.0	98.9
1929	101.0	96.4	103.3	96.9	99.0	99.9
1930	98.6	95.7	105.9	93.9	99.4	99.2

[1]The details in this section are taken largely from "Prices and Price Indexes, 1913–28," Dominion Bureau of Statistics, to which reference should be made if further details are required.

The methods of construction of this index are as follows :—

Food Index : This index includes 46 items, the weights being based upon the estimated aggregate national consumption in 1926 of each.

Beef, sirloin steak	107,000,000 lbs.
Beef, shoulder roast	322,000,000 lbs.
Veal, shoulder roast	38,000,000 lbs.
Mutton, roast leg	70,000,000 lbs.
Pork, fresh roast leg	190,000,000 lbs.
Pork, salt mess	110,000,000 lbs.
Bacon, breakfast	140,000,000 lbs.
Ham, boiled sliced	10,000,000 lbs.
Fish, cod, salt boneless	20,000,000 lbs.
Fish, finnan haddie	3,500,000 lbs.
Salmon, canned	10,000,000 cans
Lard, pure leaf	120,000,000 lbs.
Eggs, fresh "Specials" and "Extras"	120,000,000 doz.
Eggs, storage	40,000,000 doz.
Milk	1,000,000,000 qts.
Butter, dairy	125,000,000 lbs.
Butter, creamery	80,000,000 lbs.
Cheese, old and new	30,000,000 lbs.
Bread, plain white	1,000,000,000 lbs.
Soda biscuits	1,000,000 lbs.
Flour	800,000,000 lbs.
Rolled oats	100,000,000 lbs.
Rice	68,000,000 lbs.
Tapioca, medium pearl	3,500,000 lbs.
Tomatoes, canned, 2½'s	45,000,000 cans
Peas, canned, 2's	7,500,000 cans
Corn, canned, 2's	12,500,000 cans
Beans, com., dry	50,000,000 lbs.
Onions, dry yellow, etc.	100,000,000 lbs.
Potatoes	150,000,000 pks.
Apples, evaporated	2,500,000 lbs.
Prunes, medium size	11,000,000 lbs.
Raisins, seeded	22,500,000 lbs.
Currants, all grades	10,000,000 lbs.
Jam, raspberry	5,000,000 (4 lbs.)
Peaches, canned, 2's	1,200,000 (2 lbs.)
Marmalade, orange	750,000 (4 lbs.)
Corn syrup	4,000,000 (5 lbs.)
Sugar, granulated	500,000,000 lbs.
Sugar, yellow	50,000,000 lbs.
Coffee, ground	15,000,000 lbs.
Tea	40,000,000 lbs.
Cocoa	5,000,000 (½ lb.)
Vinegar	10,000,000 qts.
Salt, fine table	150,000,000 lbs.
Pepper, black, ground	2,000,000 lbs.

Prices are secured by circularising some 900 grocers and 700 butchers together with information collected by correspondents of the Department of Labour. Average prices are calculated for more than seventy cities and these in turn converted to a Dominion average for each commodity. Each average price is weighted by the national consumption shown above.

Fuel and Lighting Index : Information regarding items of this group is obtained.

by circularising between 600 and 700 firms to obtain prices for coal, coke, wood, gas and electricity. The items included for each type of fuel or lighting are shown below, together with weights adopted to give appropriate importance to the items within each type.

Coal—Anthracite	4,000,000 tons	Wood—Hard	1,500,000 cords
Eastern Bituminous	1,000,000 tons	Soft	1,500,000 cords
Western Domestic	2,100,000 tons	Gas—Natural	1
B.C. Bituminous ..	400,000 tons	Manufactured ..	4
Coke—By Product		Electricity	

Separate index numbers are first made for each type of fuel or lighting and these are weighted by a figure representative of the importance of the sub-group in consumption. The weights are as follows : Coal, 53 per cent. ; Wood, 16 per cent. ; Gas, 9 per cent. ; Electricity, 13 per cent. ; Coke, 9 per cent.

For the purpose of constructing the coal index, Canada is divided into three parts, according to the kind of coal most used for domestic purposes. In the maritimes, Eastern bituminous is the typical coal fuel ; for Ontario and Quebec it is anthracite and coke. Western domestic coal is used in the Prairie Provinces, and in British Columbia both Western domestic and B.C. bituminous are extensively used. City prices are weighted by domestic consumption data to obtain provincial average prices, and these in turn are weighted by provincial domestic consumption in order to obtain the Dominion index.

Wood index numbers are constructed on similar principles with the exception that no account is taken of different consumption areas.

Gas index numbers include both natural and manufactured gas. In each case average monthly bills are weighted with consumption figures for each city. The resulting index numbers are then weighted by the national domestic consumption of natural and manufactured gas to obtain the final index.

Electricity index numbers are computed on the basis of monthly bills representing average consumption in Canadian cities weighted by the number of customers in each city in 1926.

By-product coke has been taken as representative of all coke in making the index for this fuel. Over 75 per cent. of the coke manufactured in Canada in late years has been of that variety, and imported coke is almost exclusively of that kind.

Index numbers for coke are constructed by weighting city average prices with consumption figures and the resulting aggregate index for each province is again weighted by provincial consumption in 1926 in order to arrive at the Dominion figure. No prices are included for the Western provinces in calculating this index because their consumption is negligible.

Clothing Index : For this group 55 clothing items are utilised : Men's, 25 ; Women's, 23 ; and Women's dress goods, 7. They are shown below together with the relative weights attached to each item in each of these three sub-groups.

Women's		*Men's*		*Yard Goods*	
Suit	½	Overcoat, winter	½	Cotton :	
Top coat, winter	½	Overcoat, spring and fall	½	Persale	1
Top coat, spring and fall	½	Suit, working	½	Gingham	1
Dress, cotton house dress	2	Suit, best	½	Cotton Crepe	1
Dress, wool	1	Sweater coat	¼	Wool :	
Dress, silk	1	Raincoat	¼	Serge	1
Raincoat	½	Socks, cotton	2	Flannel	1
Stockings, wool	2	Socks, silk	2	Tweed	1
Stockings, pure silk	3	Socks, cashmere	2	Gaberdine	1
Nightgown, cotton	2	Socks, woollen	2		
Nightgown, artificial silk	½	Underwear, woollen	1		
Vest, cotton	2	Underwear, cotton	2		
Vest, rayon	2	Shirts, work	2		
Bloomers, rayon	2	Shirts, negligee	2		
Bloomers, wool	1	Collars, soft	6		
Slip, rayon	1	Ties	3		
Hats, winter	1	Gloves, light	1		
Hats, summer	1	Gloves, heavy	1		
Gloves, light	1	Hats, felt	1		
Gloves, heavy	1	Caps	½		
Women's light shoes	1	Boots, working	1		
Women's Oxfords	1	Shoes	½		
Women's goloshes	1	Boots, better grade	½		
Women's rubbers	1	Rubbers	1		

In calculating the index number for this group separate indices are first completed for the three sub-groups and these are weighted by the figures 50, 33.3, and 16.7 per cent. respectively in order to arrive at the final group index.

In order to obtain prices for the commodities included, over two hundred schedules are sent out quarterly. Included in the above estimate of clothing returns as single units, are groups of schedules received from practically all the large Canadian departmental stores. Each store sends in sixteen schedules of men's and women's clothing prices and in nearly all cases quotes on three grades of every article specified. Because departmental stores play such a large part in the determination of retail price levels, the returns received from them are given considerable weight in the compilation of the clothing index data.

The following Canadian cities are covered by departmental store price schedules : Montreal, Toronto, Winnipeg, Saskatoon, Regina, Calgary, Lethbridge, and Vancouver.

Because of the difficulty of following clothing prices through a period of time of any length owing to changes in style and season the index numbers of this group are calculated by the link relative method and afterwards tied up into chain relatives : that is to say index numbers are calculated for each commodity from current prices with immediately preceding prices as a base and the resulting index multiplied to the last of the indices on the 1926 base to make a continuous chain. Individual index numbers are then weighted by estimated consumption and combined to the final clothing index.

Rent Index : In order to follow the trend of rentals, four types of dwellings are used, viz. : house, duplex, flat and apartment, and in each case, with the exception of duplex houses, information is utilised regarding both lower and

medium grade dwellings. In all about five hundred schedules are sent out semi-annually. The averages resulting from the compilation of these data are weighted as follows :—

Sub-group weights :

A. Grade of Dwelling

Lower Grade	40 per cent.
Medium Grade	60 „ „
	100 „ „

B. Type of Dwelling

	Lower Grade	*Medium Grade*
House	84.6 per cent.	73.3 per cent.
Duplex		8.3 „ „
Flat	7.7 „ „	7.7 „ „
Apartment	7.7 „ „	10.7 „ „
	100 „ „	100 „ „

In calculating the general rental index seven sub-indices are made corresponding to the type of dwellings noted above. These indices are based upon averages of rental quotations for each city. After the city averages have been weighted the sub-indices are obtained by the aggregate method. The two sets of sub-group weights are then applied to obtain the final index.

Miscellaneous Index : This group contains many items and a number of sub-groups, each of which is weighted to obtain the group index. A summary of the data is given below :

Groups	Number of Items	Estimate of Average Number of Schedules	Sub-group Weights	Frequency of Calculation
1. Medicine (drugs)	15	95	15	Annually
2. Household Effects	49	Textiles 70 Hardware 95 Crockery 20	40	Quarterly
3. Furnishings	20	80	119	Quarterly
4. Tramfares	2	60	59	Annually
5. Telephones	1	75	59	„
6. Amusements	1	55	90	„
7. Insurance	2	Data covering 14 Life and 44 Fire Cos.	109	„
8. Tobacco	4	40	90	„
9. Newspapers	2	75	24	„
10. Books and Education	3	Periodicals 10 Publishers 3 Stationers 6	15	„
11. Doctor	3	35—N.B. Provincial Schedules of fees used	71	„
12 Dentist	1	60	18	„
13. Hospitals	4	200	24	„
14. Laundry	4	60	14	„
15. Cleaning Supplies	6	400	13	Quarterly
16. Barber	3	65	27	Annually
17. Toilet Articles	10	95	16	„
18. Motor Operation Costs	2	Data covering motors operated by private owners, taxi companies, Government fleets, Civic fleets, etc.	197	„
Total	132	Total	1,000	

Method of Construction : Several of the miscellaneous groups having no special characteristics and all being calculated in the same manner, may be considered together. They are computed from link relatives in much the same manner as is done in the case of the clothing sub-groups. Relatives are made from the quotations of the individual firms or persons. These relatives are averaged for every city and then weighted to obtain Provincial and Dominion averages of relatives. Finally, a Dominion average price is calculated for each commodity in the group, which bears the same relation to the last previous price as the average of relatives bears to 100. The bases of these calculated prices are averages of actual prices in 1926. Thus if the average of relatives for the post-base period were 110 and the base price $1.00 the new price would be $1.10. The prices calculated in this way are weighted with estimates of national consumption and from the aggregates of the resultant products, Dominion link relatives are obtained. These are changed to chain relatives on a base 1926=100. The indexes for prices of medicine, tobacco, household furnishings, laundry, cleaning supplies, barbers' services, and toilet articles are constructed on this plan. So also are those for dentists' fees and theatre admission prices, but the arrangement of the data is slightly different for these two indices. The principle involved in the construction of the sub-group indexes for textiles, hardware and crockery which are combined to form the household effects index, is likewise the same as that described above. The final index for household effects is obtained by weighting the three group indexes upon a consumption or replacement basis and then taking an average of these figures.[1]

Weighting : The manner in which the various sub-groups in each major group—food, fuel and lighting, rent, clothing, and sundries—are weighted has been explained above. In the construction of the total index the following weights are employed : Food, 30 per cent. ; Clothing, 8 per cent. ; Rent, 20 per cent. ; Fuel and Lighting, 6 per cent. ; Sundries, 26 per cent. These weights, also, are based upon estimates of aggregate national consumption of the different commodities and services.

Base : For the revised index the year 1926 is taken as base.

Frequency of Compilation : Monthly, with a yearly average also computed.

3.—*Index Numbers of a Family Budget of Staple Foods, Fuel and Lighting and Rent by Provinces.*

The Dominion Bureau of Statistics also publishes information relating to changes in the cost of a limited family budget comprising food, fuel and lighting, and rent. For the food items the budget of staple foods collected monthly by the Department of Labour is utilised (see p. 159). The fuel and lighting item includes coal and wood but not electricity or gas. No clothing or miscellaneous items are comprised in these index numbers. Their importance, however, lies in the fact that the indices are given for separate provinces and, in consequence, an approximate indication can be obtained of the relative movements of important elements

[1]For further details of the manner of construction of the Indices for tramfares, telephones, insurance, newspapers, books and educational lists, doctors' fees, hospital charges, motor operating lists, see " Prices and Price Indexes, 1913–28," p. 185.

in the cost of living in different parts of the country. In Table III. below the composite index is shown for the nine provinces for each of the years 1921–30.

TABLE III.

INDEX NUMBERS OF A FAMILY BUDGET OF STAPLE FOODS, FUEL AND LIGHTING AND RENT BY PROVINCES

(1924=100)

	1921	1922	1923	1924	1925	1926	1927	1928	1929
Novia Scotia	113	101	102	100	101	103	101	101	103
Prince Edward Island	103	98	102	100	101	103	100	98	101
New Brunswick	107	97	101	100	101	104	101	101	102
Quebec	109	100	102	100	102	105	103	103	105
Ontario	109	101	102	100	101	104	103	103	104
Manitoba	111	101	101	100	102	102	102	103	106
Saskatchewan	109	100	101	100	102	102	103	103	105
Alberta	113	103	102	100	104	104	104	103	107
British Columbia ..	112	102	100	100	103	103	103	104	107

FRANCE

WAGE STATISTICS

THE measurement of the movement of wages in France is complicated both by the nature of the industrial system and the systems of wage payment which have become common. In the first place the range of wages in the same or approximately similar occupations is very wide. This is due partly to the size of the country itself and the variations in cost of living between different areas,[1] particularly between town and country and small and large towns; partly to the weakness of Trade Unions and the absence of widespread collective bargaining, and partly to the relative importance of small scale industry—*la petite industrie*—in which conditions of work and remuneration often differ widely from those in concentrated and localized factory industries—*la grande industrie*.[2] In the second place wage rates, however comprehensive, are likely to be misleading because of numerous supplementary payments which the workers in many industries receive.[3] In many industries there is a great deal of piece work;[4] family allowance schemes are extremely common though perhaps not so widespread as formerly; special allowances for changes in cost of living are general and have taken on an added importance through the peculiar movement of internal prices in France since 1920.[5]

Such complications could only be effectively overcome by the collection of comprehensive statistics relating to actual earnings in industry. But in practice very few figures of earnings are available. For the coalmining industry earnings can be obtained and in the metal and engineering trades around Paris hourly earnings of a reliable and detailed nature are published. But for the bulk of the other great factory industries of France and for transport no figures are published. The statistics of wages provided by the Conseils de Prud'hommes of about 200 towns and published by the Statistique Générale do not fill this gap for it

[1] See the section on Cost of Living, p. 177.

[2] Only very fragmentary information is available of the relative movements of wages in small scale and large scale industry but wherever a comparison can be made it seems that there is not necessarily coincidence of movement. Cf. H. André Laporte "Mouvements de Salaires depuis 1914."

[3] Thus the International Labour Office shows that in the French coalmining industry in 1925 of the total earnings of the workers 26.2 per cent. was received in items other than net. money wages ("Wages and Hours of Work in the Coalmining Industry," p. 82).

[4] Thus the Groupe des Industries Métallurgiques, Mécaniques et Connexes de la Région Parisienne collects very detailed statistics of the earnings of about a quarter-of-a-million workers in the firms covered by it. The proportions of total earnings paid to those on piece work for different occupations in 1930 were: fitters, 60 per cent.; hand moulders, 65 per cent.; electrical fitters, 55 per cent.; sheet iron workers, 76 per cent.; tinsmiths, 45 per cent.; coppersmiths, 58 per cent. Workers engaged on piece work in these occupations show hourly earnings between 10 and 20 per cent. above workers in the same occupations on time rates.

[5] Another example of the importance which supplementary items may attain in money earnings is shown below. The figures show the percentage distribution of the actual hourly earnings, for a fortnight in 1930, of about 5,000 workers (excluding apprentices) in a shipyard in France.

Basic Wage Rate	63
Family Allowance	2
Allowance for Cost of Living	3
Bonuses for Piece Work	28
Overtime	3
Sundry Items	1
TOTAL	100

is not possible to determine whether they represent actual earnings or rates; they measure, for the most part, movements of wages in small establishments and the methods of collection and averaging have certain drawbacks incidental to the nature of the information obtained. It will not be possible to obtain an exact idea of the general movement of rates or earnings in French industry until much more is known of the course of wages in such industries as transport (particularly railways), textiles, and clothing.

The following are the important sources of wage material in France :—

1.—*Wage Statistics in a Number of Occupations in Certain Towns in France, furnished by the Conseils de Prud'hommes or by Mayors.*

This material is collected by the Statistique Générale and published periodically in its Bulletin. In Table I. below the movements in these wages are shown 1921–30 for the whole of France (except Paris) for men's and women's occupations separately and for men's occupations in Paris. Both hourly and daily wages are given.

TABLE I.

AVERAGE WAGES IN A NUMBER OF OCCUPATIONS IN FRANCE

(Francs.)

	Whole of France (except Paris)						Paris (Men only)		
	Men			Women					
	Daily	Hourly		Daily	Hourly		Daily	Hourly	
	Actual	Actual	1924=100	Actual	Actual	1924=100	Actual	Actual	1924=100
Feb., 1921..	18.92	2.31	89	9.44	1.17	85	28.12	3.52	92
Oct., 1924..	22.00	2.62	100	11.36	1.38	100	30.82	3.85	100
Oct., 1925..	23.25	2.79	107	12.24	1.51	109	33.37	4.15	108
Oct., 1926..	26.93	3.22	123	15.29	1.86	135	41.46	5.10	133
Oct., 1927..	27.34	3.31	127	14.84	1.81	131	41.70	5.12	133
Oct., 1928..	28.44	3.45	132	16.06	1.97	142	42.75	5.25	137
Oct., 1929..	31.34	3.83	147	18.30	2.26	164	49.34	6.07	158
Oct., 1930..	33.56	4.08	156	19.79	2.42	175	53.76	6.61	172

The methods employed in collecting and averaging these figures and the nature of the original data are as follows :—

Method of Collection and Area Covered : Questionnaires[1] are sent to all towns in which a Conseil de Prud'hommes is to be found and also to the mayors of those " chef-lieux de département " where such a body does not exist. In this way information is received from over 200 towns. In Paris assistance is received from some employers associations.

Occupations Covered : For the whole of France (excluding Paris) 38 occupations[2]

[1]A copy is appended, p. 176.

[2]Brewery workers, compositors, book-binders, tanners, saddlers, shoemakers, tailors, dyers, weavers, rope-makers, wheelwrights, wood-turners, coopers, cabinet-makers, upholsterers, sawyers, carpenters, joiners, coppersmiths, tinsmiths, plumbers, blacksmiths, farriers, stove-makers, locksmiths, metal-turners, watch-makers, quarry workers, stone-cutters, masons, navvies, tilers, painters, brick-makers, potters, glaziers, stone-carvers, labourers.

are included in Table I. The number of female occupations is 7.[1] For Paris the number of occupations, all men's, has varied between 21 and 23.[2]

Nature of the Wage Data : The nature of the material furnished is not precisely defined. The Statistique Générale asks, in its questionnaire, for hourly and daily " current wages " and by this term is meant " the usual rate in each occupation." It is impossible to say, therefore, whether the figures represent actual earnings or basic rates or whether allowance is made for overtime earnings. Theoretically all supplementary payments, such as family allowances and cost of living bonuses and overtime rates, should be included but it is impossible to say how far they are so included. There is no stipulation in the questionnaire as to how many quotations of wage rates must be obtained in order to determine the figure finally submitted by the Conseil de Prud'hommes to the Statistique Générale. Most important of all, it is necessary to notice that, with the exception of Paris, the figures refer almost wholly to " la petite industrie;" they do not measure, and do not claim to measure, movements in large scale industry.

Method of Weighting : From the information of wages for each occupation for each town the Statistique Générale then constructs two averages. The first shows the average wages for all towns for each occupation. The second groups together all occupations for all towns to produce anational average. In both these cases a simple arithmetical average is employed, no weighting whatsoever is used.

It will be apparent from this account of the information supplied by the Conseils de Prud'hommes that the indices shown in Table I. are of limited value. The vagueness as to what is included in the original material furnished ; the absence of any indication of the precise basis upon which each town submits its figures ; the absence of weighting in the national and occupational totals ; the possibility that the occupational terms are differently interpreted from place to place and time to time—all these make it necessary to attach great importance to the reservations with which the Statistique Générale presents these figures.

An analysis of the wage statistics for the individual towns confirms these doubts. In the first place there appears to be a remarkably wide range of wages between the towns. The " spread " of hourly wages in two occupations—carpenters and blacksmiths—in October, 1929, is shown below.

NUMBER OF TOWNS WITH GIVEN HOURLY WAGES

	Hourly Wages (Francs)								
	—3.00	3.01—3.50	3.51—4.00	4.01—4.50	4.51—5.00	5.01—5.50	5.51—6.00	6.01—7.00	Total
Carpenters ..	9	39	69	39	31	6	3	3	199
Blacksmiths..	12	56	64	34	20	7	1	4	198

[1]Ironers, dressmakers, seamstresses, waistcoat-makers, lace-makers, embroiderers, milliners.
[2]Compositors, book-binders, tanners, tailors, wood-turners, cabinet-makers, sawyers, carpenters, joiners, plumbers, blacksmiths, locksmiths, turners, watch-makers, quarry workers, stone-cutters, masons, navvies, tilers, painters, stone-carvers, brick-makers, glaziers.

The very wide range thus revealed may, of course, be due to real differences in wages in the different towns. But the nature of the figures also suggests that these differences are due either to a varying occupational classification between one town and another; to a difference in the nature of the labour in different localities (i.e., geographical differences in efficiency, etc.) or to differences in the methods of collecting and recording wage information in different localities.

A further significant conclusion to be drawn is that wages in Paris are not a reliable index of either the level or the movement of wages in the rest of France. Table I. above shows that, for the group of male occupations actually taken, Paris wages are well above those for the rest of the country; in 1929 exceeding them by about 60 per cent. Even when the same occupation is considered, there appears to be a wide gap between the wages in the capital and those in the rest of the country. More important still, wages in the two areas do not move closely together. In Table II. below the daily wages for a number of occupations in the whole of France are given with the wages in the same occupation in Paris as base (=100). The relative movements of the two groups of wages vary from one occupation to another but it will be seen that the general trend was for wages in France to rise, relative to Paris wages, for several years after 1921 but that this tendency seems now to have been reversed.[1]

TABLE II.

DAILY WAGES IN A NUMBER OF OCCUPATIONS IN FRANCE WITH WAGES IN THE SAME OCCUPATION IN PARIS AS BASE (=100)

Year	Masons	Brick-makers	Car-penters	Joiners	Plum-bers	Turners (Metal)	Black-smiths	Com-positors	Tailors
Feb., 1921..	70	77	72	65	69	74	64	67	64
Oct., 1924..	74	92	80	76	77	79	66	67	70
Oct., 1925..	79	64	80	76	76	76	65	66	65
Oct., 1926..	73	60	75	73	73	72	56	61	57
Oct., 1927..	74	64	68	69	70	74	63	65	59
Oct., 1928..	74	65	72	72	73	70	66	67	59
Oct., 1929..	70	64	66	66	66	66	63	61	65
Oct., 1930..	71	60	69	65	63	70	67	68	65

[1]Even when average daily wages for a group of large towns (Paris, Lyon, Marseilles and Toulouse) are taken together and compared with the average wages for the same occupations in the whole of the country significant divergences in movement are to be observed. Thus, using the wages in the four large towns taken together as base (=100) the hourly wages among carpenters, plumbers and compositors in the whole of France were :—

	Carpenters	Plumbers	Compositors
Feb., 1921	77	79	76
Oct., 1924	75	82	80
Oct., 1926	70	76	67
Oct., 1927	76	77	72
Oct., 1928	77	80	66
Oct., 1929	76	78	72

2.—*Earnings in the Coalmining Industry.*

Wage statistics in the coalmining industry of France are comprehensive, though the publication of some series is often tardy. The three important sources of information are the Annual figures published by the Department of Mines, the quarterly figures issued by the Central Committee of French Collieries (Comité central des Houillères de France) and the special studies which have been made by the International Labour Office.[1] Table III. below shows the earnings per "Man-day" of all coalmine workers in France as computed by the Central Committee.[2]

TABLE III.

AVERAGE DAILY EARNINGS OF COALMINE WORKERS IN FRANCE
(Francs.)

	Underground		Surface		Total	
	Actual	1924=100	Actual	1924=100	Actual	1924=100
1921	20.49	83	15.82	87	18.84	83
1922	18.77	77	14.04	77	17.18	75
1923	21.58	87	16.34	90	19.92	88
1924	24.67	100	18.23	100	22.80	100
1925	25.60	104	18.57	102	23.72	104
1926	30.66	125	22.50	123	28.40	125
1927	34.33	140	25.02	137	31.39	138
1928	33.53	137	24.90	137	31.03	136
1929	37.18	151	27.47	151	34.30	150
1930	40.07	163	29.76	163	36.99	162

These statistics are collected in the following manner:

Scope: The figures include all bituminous, anthracite and lignite mines in France with the exception of the Saar region.

Nature of Wage Data: The earnings comprise the total money payments to the workers including all bonuses and allowances (such as family allowances and cost of living bonuses) and social insurance contributions but not allowances in kind.

[1] "Wages and Hours of Work in the Coalmining Industry." Studies and Reports Series D. No. 18. "Wages and Hours of Work in the Coalmining Industry, 1927." *International Labour Review*, Oct., Dec., 1929. "Wages and Hours of Work in the Coalmining Industry." *International Labour Review*, May, 1931.

[2] The statistics of daily earnings published by the Department of Mines do not exactly agree with these published by the Central Committee. Thus using the former as base (=100) daily average earnings as recorded by the latter were:—

	Underground	*Surface*	*Total*
1921..	97	97	96
1922..	99	99	100
1923..	100	98	99
1924..	98	96	98
1925..	99	95	98
1926..	99	98	99
1927..	101	99	100

Calculation of Average Earnings per Day : The total number of " man-days " is determined (since in France there is very little overtime and very few supplementary shifts the number of " man-days " approximates very closely to the total number of shifts worked). The average earnings are then obtained by dividing the total payments within the year by the total " man-days." Since average earnings may be influenced by a change in the constitution of the personnel of the industry the following table shows the distribution in 1921 and 1927.

PERCENTAGE DISTRIBUTION OF MINING WORKERS

	Underground				Surface					
	Men	Workers 16–17 years	Workers below 16 years	Underground total	Men	Women	Workers 16–18 years	Workers below 16 years	Surface Total	Total
1921	57	5	3	65	27	2	2	4	35	100
1927	64	4	4	72	21	2	2	3	28	100

It will be seen that there has been an increase in the proportion of the underground, and more highly-paid workers, which would have been sufficient to cause an increase in the average hourly earnings without any change taking place in the hourly earnings of any particular grade of worker.

If estimates of hourly earnings are to be made from the statistics above of daily earnings it is necessary to make allowances for payment in kind, which, in France, are particularly important, and to ascertain the average number of hours worked per day. On both these matters the special reports of the I.L.O. throw light. The proportion that allowances in kind bear to total labour costs, excluding employers' insurance contributions, was as follows :—

PROPORTION THAT ALLOWANCES IN KIND BORE TO TOTAL LABOUR COSTS IN THE COALMINING INDUSTRY 1925, 1927, 1929

1925	12.9 per cent.
1927	11.5 per cent.
1929	11.4 per cent.

The hours of work per day of underground and surface workers is shown below.

HOURS OF WORK PER DAY[1] OF COALMINE WORKERS

	Underground	*Surface*
1925	7 hrs. 44 mins.	7 hrs. 59 mins.
1927	7 hrs. 47 mins.	7 hrs. 59 mins.
1929	7 hrs. 52 mins.	7 hrs. 59 mins.

For details of the basis upon which hours worked are calculated the I.L.O. reports should be referred to.

The I.L.O. also has computed the average hourly earnings of all coal mine workers for the same years.

AVERAGE HOURLY EARNINGS OF COALMINE WORKERS
(Francs)

	Underground	*Surface*
1925	3.92	2.76
1927	4.98	3.58
1929	5.38	3.73

3.—*Earnings in the Metal, Engineering, and Associated Industries of the Paris Region.*

The figures of hourly earnings in the metal and engineering industry in the neighbourhood of Paris are collected by the manufacturers' association (Groupe des Industries Métallurgiques, Mécaniques et Connexes de la Région Parisienne) and they constitute a very important body of earnings statistics. Table IV. shows the hourly earnings 1921–30.

TABLE IV.

AVERAGE HOURLY EARNINGS OF ADULT MALE WORKERS IN THE METAL AND ENGINEERING TRADES OF THE PARIS REGION
(in Francs.)

Year (1st quarter)	Craftsmen (*a*)		Skilled Labour (*a*)		Unskilled Labour (*a*)		Total (*a*)		Total (*b*)	
	Actual	1924=100	Actual	1924=100	Actual	1924=100	Actual	1924=100	Actual	1924=100
1921(*c*)	3.20	85	2.35	81	1.94	82	2.69	84	2.83	83
1922	3.22	86	2.35	81	1.99	84	2.68	84	2.82	83
1923	3.49	93	2.51	86	2.01	85	2.90	91	3.04	89
1924	3.73	100	2.91	100	2.36	100	3.21	100	3.39	100
1925	3.92	105	3.27	112	2.49	105	3.43	108	3.61	107
1926	4.41	118	3.70	127	2.74	116	3.86	120	4.04	119
1927	5.14	138	4.23	145	3.21	135	4.48	140	4.81	142
1928	5.20	139	4.39	151	3.28	139	4.57	143	4.90	144
1929	5.73	153	4.85	166	3.68	156	5.06	158	5.39	158
1930	6.55	175	5.30	182	4.22	179	5.71	178	6.04	177

(*a*) Not including family allowances.
(*b*) Including family allowance for two children.
(*c*) 2nd quarter.

The methods of collection and averaging are as follows :—

Scope : This manufacturers' association is confined to an area within a radius of about 60 kilometres of Paris. The number of firms and workers covered by the statistics has grown since 1921, a fact which to some degree affects the comparability of the wage statistics over the period. At the moment about 1,000

firms and a quarter-of-a-million workers are represented in the association, this being 75–80 per cent. of the total workers in these trades in the region. The relative importance of the different occupations among these workers is referred to below.

Frequency of Compilation : The annual figures are based on enquiries of earnings in two successive fortnights between the middle of January and the middle of February. Figures for other quarters of the year are published upon less comprehensive figures which come to the notice of the association.

Nature of Data : (*i.*) The hourly earnings comprise all money receipts by the worker for normal time and overtime, both time and piece work. All money bonuses and allowances for cost of living are, therefore, included. (*ii.*) Family allowances, are not included. Many of the metal workers, however, covered by Table IV. above are employed by firms which operate in the Family Allowance Compensation Fund of the Paris district. This pool covers some 400,000 workers and 2,700 firms. The " Groupe des Industries Métallurgiques " gives information of the amount received in the form of family allowances by families of different sizes. In the final column of Table IV. a figure of hourly earnings including the allowance which would be received by a family with two children is given. (*iii.*) A distinction is made between craftsmen (Professionels) ; skilled labour (manœuvre specialisé) and unskilled labour (manœuvre ordinaire) along the following lines :—

Craftsmen : Those carrying through jobs which require skill only to be acquired by several years' apprenticeship or practice.

Skilled Labour : Those engaged in simple processes, of a repetitive kind, which require some days' or weeks' practice.

Unskilled Labour : Those engaged in processes, such as cleaning, carrying and maintenance, which are not directly related to the manufacture of materials and which need no training or preparation.

(*iv.*) Details are collected of the wages of 127 types of craftsmen ; 53 types of skilled labour ; unskilled male labour ; women ; young workers ; apprentices of 1, 2 and 3 years' standing and labour in ancillary occupations.

Method of Construction of Averages : (*i.*) Uniform questionnaires are sent to all firms. The firms are required to furnish, for each of the occupation groups, details of the actual hourly earnings (including overtime, etc.). The firms are required to show the distribution of these earnings over a very detailed scale. (Thus, for example, each firm would be required to show the number of its tool fitters with average hourly earnings of .50–60 frcs. .61–70 frcs. ;..... 4.81–5.00 frcs. ;.....9.81–10.00 frcs.). From the details supplied by the separate firms the association can, by addition, determine the total number of workers in each occupation employed at each level of hourly earnings and it has, therefore, at its disposal the distribution curve of earnings for each occupation.

(*ii.*) The average hourly earnings for each occupation is next determined. From the whole range of earnings, abnormally low and abnormally high earnings are ignored. This is done arbitrarily but usually it amounts only to about 2 per

cent. of the total workers at either end of the curve. Either one of two methods is now followed. If the hourly earnings show a fairly wide range the curve is divided into three parts containing 15, 70, 15 per cent. of the total workers. Weighted averages are then calculated for each of these three groups and, for the purposes of Table IV., the average for the middle group is taken. If, however, the hourly earnings are concentrated within a narrow range, a weighted average is taken without making this tripartite division.

(*iii.*) In the construction of Table IV. above only adult male workers are included. The average figure for " craftsmen " is obtained by taking the hourly earnings of the fundamental occupation in each of ten important industrial groups and employing the following weights based upon the number of workers employed in that occupation :

Industrial Group	Occupation	Weight
Metal	Rolling-mill Worker	3.0
Foundries :		
Aluminium		.7
Copper and Bronze } ..		2.1
Iron and Steel } ..	Hand Moulder	4.2
Engineering Construction :		
Automobile } ..		26.95
General Engineering } ..	Fitter	22.05
Electrical Construction ..	Electrical Fitter	9.0
Carriages	Sheet Metal Worker	15.50
Brazing and Forging ..	Coppersmith	6.0
Tin	Tinsmith	6.0
Others		4.5
		100.0

In order to group together the average hourly earnings of craftsmen, skilled and unskilled workers the weights employed are determined by the relative number of workers in each group. At the moment the weights employed are : craftsmen 50 ; skilled workers 30 ; and unskilled workers 20.

APPENDIX

Wage Questionnaire Sent by the Statistique Générale to Conseil de Prud'hommes, and to Mayors.

Sir,

Please complete and return immediately this questionnaire concerning current wages in certain occupations.

This questionnaire is similar to that which has been sent to you each October since 1924. In addition to the occupations which have been included in order to make comparisons possible with previous enquiries, it would be useful if you could add any occupations in your locality in which there are generally adopted wage rates.

Will you also please state for the most important occupations the usual cost for board and lodgings paid by an unmarried worker in order to compare the cost of living at different points with similar information supplied by previous enquiries ?

Occupations	Annual number of days worked by the majority of workers in each occupation.	Usual length of day's work		Ordinary wage of a worker without board.		Observations. State wherever possible the wages of the worker with board and if, at the same time, he receives lodging. State if the wage of the worker with board and lodging is paid by the day or the month.
		Summer	Winter	Hourly	Daily	

State which are the most important numerically of the male occupations given above .....

What is the usual cost of board and lodging for unmarried workers in these occupations ?

Food alone .....

Lodging alone .....

Food and Lodging .....

COST OF LIVING STATISTICS

THERE is no very reliable index of changes in the cost of living or the standard of living for the whole of France. The statistics recording the movement in retail prices are fairly comprehensive but it appears that the index for the whole country is not so exact as that for Paris, partly because it is based on less comprehensive material but largely because it is an unweighted average of the figures derived from all towns with more than 10,000 inhabitants. This drawback would be less serious if the movements of food prices in Paris were representative of those in the country as a whole but it appears that this is not always the case. So far as cost of living indices are concerned, only that for Paris can at present command confidence, though this also is subject to some limitations. Steps are being taken at the moment, however, to improve the information concerning the cost of living in other parts of the country but it will be some time before this material becomes valuable for comparisons over a sufficiently long period. The outstanding limitation of every index which bears upon retail prices or cost of living in France is the lack of any detailed information of the consumption habits of the working classes. Until some comprehensive investigation is made upon this matter it will be impossible to use the price material which is now collected to the best advantage.

The most complete material now available is as follows :—

I. Retail Food Prices

1.—*Index of the Movement of the Retail Prices of 13 Food Commodities.*

This index is compiled by the Statistique Générale de la France to record movements for the whole of France, for six regions separately and for Paris. It is shown below for the period 1921–1930 with Feb., 1924 as the base period.

Table I. relates to the whole of France, with the exception of Paris, whilst Table II. shows the details for the capital city.

TABLE I.

INDEX OF MOVEMENTS OF THE RETAIL PRICES OF 13 COMMODITIES FOR FRANCE AND SIX REGIONS (*a*)

(Feb., 1924=100)

	The whole of France (*b*)	North	East	South-East	South	West	Alsace-Lorraine
Feb., 1921 ..	107	106	105	108	108	109	108
Feb., 1922 ..	81	82	78	81	81	81	80
Feb., 1923 ..	83	84	82	84	83	82	79
Feb., 1924 ..	100	100	100	100	100	100	100
Feb., 1925 ..	110	109	110	112	111	111	112
Feb., 1926 ..	125	124	123	128	128	126	126
Feb., 1927 ..	146	143	141	150	149	148	144
Feb., 1928 ..	130	129	126	133	133	131	129
Feb., 1929 ..	144	143	138	147	146	144	141
Feb., 1930 ..	145	145	141	148	147	145	147
Feb., 1931 ..	161	158	161	165	165	162	160

(*a*) For a list of the towns included in each region see "Bulletin de la Statistique Générale," October, 1911. p. 34.
(*b*) Except Paris. Alsace-Lorraine included since 1919.

TABLE II.

INDEX OF MOVEMENTS OF RETAIL PRICES OF 13 COMMODITIES IN PARIS

(July, 1924=100)

July, 1920 .. 104	July, 1925 .. 117
July, 1921 .. 85	July, 1926 .. 159
July, 1922 .. 83	July, 1927 .. 155
July, 1923 .. 89	July, 1928 .. 152
July, 1924 .. 100	July, 1929 .. 168
	July, 1930 .. 167

The methods employed in collecting and grouping these figures are shown below :—

Commodities Included : The commodities included are Bread, Meat, Bacon, Butter, Eggs, Milk, Cheese, Potatoes, Beans, Sugar, Salad Oil, Methylated Spirits

and Paraffin. For the purpose of constructing the index these commodities are chosen from a larger group of goods for which the Statistique Générale publishes retail price figures[1] on the grounds that " their description is precise enough to avoid the inclusion of a wide variety of qualities " and that " their consumption does not vary excessively between the different regions." It will be noticed that all drink is excluded.

Area Covered : For the index covering the whole of France (except Paris) information is obtained from the " chefs-lieux " of each département and the towns with over 10,000 inhabitants. Price quotations are now received from about 292 localities. From May, 1928, information has been received from 63 localities which were not formerly included. In Table I. these new localities have been omitted for the purpose of comparison with earlier years but the change produced by their inclusion is not great.[2] For the index relating to Paris, figures are received from several retail stores and co-operative societies, the number of quotations for each commodity varying from time to time but ranging round about twenty.

Methods of Weighting : There is an almost complete absence in France of working-class budgetary studies which might provide the basis for the scientific weighting of the different articles of consumption.[3] There were two studies, in the nineteenth century,[4] of the normal budget of a Parisian carpenters' family of four persons ; a man, wife and two children. In 1907 there was an enquiry conducted in about 800 working-class families in Paris, designed to show the average amount of food consumed annually in a family of four persons. In 1905 H. Landouzy and M. Labbé[5] prepared theoretical budgets of the minimum amount of food necessary for continued health and efficiency of workers of different grades and the Statistique Générale calculated typical budgets for working-class families for four persons from these figures.

For the purpose of constructing its index, the Statistique Générale assumes an annual consumption, in a Parisian working-class family of four persons, of the following amounts of the different commodities : Bread 700 kilos, Meat 200 kilos, Bacon 20 kilos, Butter 20 kilos, Eggs 20 doz., Milk 300 litres, Cheese 20 kilos, Potatoes 250 kilos, Beans 30 kilos, Sugar 20 kilos, Salad Oil 10 kilos, Paraffin 30 litres, Methylated Spirits 10 litres. The recorded prices, in each town, of these commodities are then applied to the stated quantities and an index

[1]The qualities of the goods of which information is collected are shown in the questionnaire circulated by the Statistique Générale, a copy of which is appended.

[2]Thus comparing the indices for May of the years 1928, 29, and 30, for the whole of France the following result is obtained :—

	Including New Localities	*Excluding New Localities*
1928	5360	5302
1929	5846	5834
1930	5708	5694

[3]For the detailed account of what information does exist see " Salaires et Coût de l'Existence à diverses époques jusqu'en, 1910." Statistique Générale de la France. pps. 52–79 and Chapter III.

[4]The earlier one by M. Focillon in 1856 ; the later by M. de Maroussem in 1890.

[5]" Enquête sur l'alimentation d'une centaine d'ouvriers et employés parisiens."

produced, for each town, showing movements in the cost of this particular group of goods.

Finally, for the purpose of combining the information for the individual towns into indices for regions and for the whole of France unweighted arithmetical averages are employed. The Paris index is compiled in the same way as that for other towns.

Frequency of Compilation : The index for the whole of France is now given for February, May, August and November of each year. That for Paris alone is given monthly.

Base Period : The Paris and the National index have a pre-war base but in the tables above the base has been fixed in 1924.

Method of Obtaining Information : Prices are furnished, upon uniform questionnaires, by the mayors of the different towns. The prices asked for are those current in the public retail markets or in the important trading firms of the town but there is no stipulation as to the number of quotations which must be obtained for each commodity.

The index, of course, cannot lay claim to detailed accuracy in the measurement of movements in the cost of living in France. It does not include many items in a normal family budget such as rent, clothing, fuel or even drink. There is no certainty that the qualities of the goods are the same either at one time between different areas or in the same locality over different periods. The system of weighting is based upon a theoretical budget for Paris and it is hardly likely that this is suitable for application to all parts of France in which methods of living vary greatly from one area to another. In particular, the use of the unweighted average of costs in the separate towns in the construction of the index for the whole country is very likely to lead to error for it is well-known that the cost of living is very much higher in the largest towns than in the smaller. But, in so far as the movements recorded by this index do faithfully record real changes, it brings out clearly the fact that conditions in the capital city are no real index of conditions in France as a whole. In Table III. below, the movements of the costs of this group of thirteen food commodities in Paris and in France are compared. The divergencies are numerous and significant after 1927. In 9 out of 42 cases between 1920 and 1930 the two indices moved in opposite directions from one month to another and a glance at the figures will show how from time to time the two indices were out of step between 1927 and 1930. It may be, of course, that the divergencies are due to the failure of one index or both to record the real movements in the cost of food. And it has to be borne in mind that the Paris index seems to be more reliable and exact than that for France as a whole. But the strong presumption emerges that not only is the cost of living higher in the capital city than in the whole of the country but that the movements in the two groups of costs are not identical.

TABLE III.

RETAIL PRICES OF 13 FOOD COMMODITIES IN PARIS AND THE WHOLE OF FRANCE

(1914=100)

Paris		France		Paris		France	
1914 July	100	1914 Aug.	100	1914 July	100	1914 Aug.	100
1920 Feb.	297	1920 Feb.	319	1926 Feb.	495	1926 Feb.	501
May	378	May	378	May	522	May	521
Aug.	373	Aug.	388	Aug.	587	Aug.	608
Nov.	426	Nov.	450	Nov.	628	Nov.	644
1921 Feb.	382	1921 Feb.	428	1927 Feb.	585	1927 Feb.	584
May	317	May	363	May	589	May	570
Aug.	317	Aug.	351	Aug.	539	Aug.	551
Nov.	326	Nov.	349	Nov.	500	Nov.	524
1922 Feb.	307	1922 Feb.	323	1928 Feb.	522	1928 Feb.	520
May	317	May	315	May	546	May	528
Aug.	289	Aug.	313	Aug.	540	Aug.	534
Nov.	297	Nov.	314	Nov.	585	Nov.	560
1923 Feb.	316	1923 Feb.	331	1929 Feb.	602	1929 Feb.	574
May	325	May	338	May	626	May	581
Aug.	328	Aug.	350	Aug.	606	Aug.	580
Nov.	355	Nov.	374	Nov.	618	Nov.	591
1924 Feb.	384	1924 Feb.	399	1930 Feb.	598	1930 Feb.	582
May	378	May	394	May	590	May	569
Aug.	366	Aug.	399	Aug.	626	Aug.	622
Nov.	396	Nov.	426	Nov.	647	Nov.	648
1925 Feb.	410	1925 Feb.	410				
May	418	May	433				
Aug.	423	Aug.	450				
Nov.	444	Nov.	469				

2.—*Index of the Movement of the Retail Prices of* 34 *Commodities—Food, Heating, Lighting and Soap.*

At the beginning of 1931 the Statistique Générale prepared a more complete index of retail prices by including in the weighted average an increased number of the commodities for which price information is obtained from Mayors. The articles and their allocated weights, are the foods shown in the budget on page 00 together with coal, paraffin, gas, electricity and soap. The index for these 34 articles appears to vary to an appreciable degree from that for the 13 articles previously described. The methods of calculation and the manner of presentation of the new index are similar to those employed in the case of the old.

3.—*Index of Retail Prices in Consumers' Co-operative Societies.*

The Statistique Générale receives quarterly the details of retail food prices and sales of a number of co-operative societies. The number of societies reporting varies ; it has decreased since 1920 although the total volume of sales has increased but, at the moment, between 30 and 40 societies, covering about a quarter-of-a-million members, supply details. Although societies in all parts of France are included, about half the total sales reported are for the Paris region. Since the Co-operatives supply information concerning the total volume and value of sales,

unit retail prices can be determined with some accuracy. By using these prices and adopting the weights used in the index number described above in Section 1 the Statistique Générale has constructed an index number of the movements of the prices of the same thirteen food products.

This is given below in Column 3 of Table IV.

TABLE IV.

MOVEMENT OF RETAIL PRICES OF 13 FOOD PRODUCTS IN PARIS, FRANCE AND CONSUMERS' CO-OPERATIVE SOCIETIES

(1924=100)

	(I) The whole of France (Feb.)	(II) Paris (Feb.)	(III) Co-operative Societies (1st Quarter)
1921	108	100	93
1922	81	80	75
1923	83	83	78
1924	100	100	100
1925	111	107	104
1926	126	129	119
1927	146	153	132
1928	130	137	119
1929	144	158	135
1930	145	157	130

When this index is compared, as in Table IV. above, with those for Paris and the whole of France already referred to in Section 1, it is apparent that no close similarity of movement exists between the three, the index for the whole of the country falling between the others.

II. Cost of Living Committees in France

In 1920 a number of regional and local committees were set up for the study of changes in the cost of living, the constitution of the committees being framed to give representation to as wide a range of interests as possible. These committees now operate in about sixty départements. For the purposes of constructing indices for its own region, each committee was left to draw up its own standard budget for a working-class family of four people and then to measure the changes in cost which would be incurred in maintaining this budget intact. The construction of the budget in the several regions does not, however, appear to have been based on any exhaustive first-hand enquiry.

The Statistique Générale has published regularly the results obtained by the different committees. In doing so, however, it stresses the fact that such indices are not likely to be comparable among themselves and a survey of the statistics published to date suggests strongly that the different committees must be working upon quite different bases. Thus, for the latter part of 1929, the information provided by the Statistique Générale for twenty regions[1] shows that the percentage

[1]See " Bulletin de la Statistique Générale de la France," Jan.–March, 1930. p. 180.

increase over 1914, under the heading of " sundries," ranged from 197 to 983 per cent. for different regions. Similarly, under the heading of " rent " the range of increase was from 211 to 400 per cent.; under " clothing " from 229 to 741 per cent.; under " heat and light " from 315 to 648 per cent. These wide discrepancies suggest that there is no uniformity of practice among the different regions as to the items to be included in each cost group.

The cost of living committee of the Paris region is of particular importance since the index which it constructs embodies the material concerning food prices which has already been described in Section 1 above.[1] Table V. below shows the movement, with 1924 as a base, of the different expense groups and the composite index for the years 1920–30.

TABLE V.

INDEX OF MOVEMENTS IN COST OF LIVING IN PARIS

(1924=100)

	Food	Heat and Light	Rent	Clothing	Sundries	Total
1st Quarter, 1920 ..	81	56	50	98	81	81
1st Quarter, 1921 ..	93	90	50	97	116	93
1st Quarter, 1922 ..	80	85	70	76	91	80
1st Quarter, 1923 ..	88	87	100	86	91	89
1st Quarter, 1924 ..	100	100	100	100	100	100
1st Quarter, 1925 ..	107	104	100	107	100	106
1st Quarter, 1926 ..	125	126	110	127	113	124
2nd Quarter, 1927 ..	148	149	130	137	134	144
1st Quarter, 1928 ..	138	154	138	141	134	139
1st Quarter, 1929 ..	153	150	150	144	136	150
1st Quarter, 1930 ..	153	178	175	152	142	155
1st Quarter, 1931 ..	170	178	175	134	139	162

The methods of collection and construction of this index are as follows :—

Weighting : The different groups are given the following weights : Food 60 per cent.; Clothing 15 per cent.; Heat and Light 5 per cent.; Rent 12 per cent.; Sundries 8 per cent. This allocation is purely theoretical. Within the food group the cost of three months' consumption of food by a family of four is determined, the quantities being similar to those used by the Statistique Générale in the construction of its index number of food products.[2] For the clothing group the total quarterly consumption of the standard family of four is taken as :

Men : Suit $\frac{1}{4}$; Overcoat $\frac{1}{8}$; Working Dress $\frac{1}{2}$; Shirt 1; Footwear $\frac{1}{2}$; Hat $\frac{1}{2}$.
Women : Dress $\frac{1}{4}$; Mantle $\frac{1}{4}$; Gown (Peignoir) $\frac{1}{2}$; Chemise 1; Footwear $\frac{1}{2}$; Hat $\frac{1}{2}$.
Boy : Cloth Suit $\frac{1}{4}$; Jacket (Vareuse) $\frac{1}{4}$; Shirt $\frac{3}{4}$; Footwear $\frac{1}{2}$; Hat $\frac{1}{2}$.
Girl : Robe $\frac{1}{4}$; Mantle $\frac{1}{4}$; Chemise 1; Footwear $\frac{1}{2}$; Hat $\frac{1}{2}$.
Household Linen : Handkerchiefs 6; Towel 2; Sheets (draps) $\frac{1}{2}$.

[1]Moreover the International Labour Office has, since 1924, published this index as the most satisfactory cost of living index in France.

[2]See above Section 1.

In the Heating and Lighting group the quarterly consumption of the family is assumed to be : 250 kilos of coal ; 100 cubic metres of gas ; 6.25 litres of paraffin. For rent, only very approximate figures are obtained, the index being moved by round figures from time to time. In the Sundries group an attempt is made to take into account such items as medical expenses, transport, and amusement costs. The final figure is arrived at by obtaining an index for each group, showing the cost in relation to the 1914 level (= 100) and then using the weights mentioned above in the establishment of the average.

Frequency of Compilation : The index is published for each quarter.

This index, approximate as it is in many respects, would seem to lead to the conclusion that, since 1914, the increases in the costs of such items as heat and light, clothing and sundries have been rather greater than in the case of food but that rents have not increased to nearly the same extent. If this were true for the whole country it would have an important bearing upon the question of cost of living in France. But, unfortunately, it seems hardly possible to put sufficient reliance upon the index numbers of some of the Cost of Living Committees in other regions to state confidently whether this is so or not.

The methods employed and the results achieved by the various Cost of Living Committees had, however, proved themselves so unsatisfactory by 1929 that the Central Cost of Living Commission, working through the Government and the Statistique Générale, undertook the reform of the whole system with a view to establishing greater reliability and uniformity in the indices of the different regions. It is intended that the new methods shall come into operation shortly and the important changes to be affected are as follows :—

Weighting : Every committee must now conform to a fixed and uniform system of weighting.[1] The only discretion left to the regional committees is that of deciding what items shall be included within each subdivision. It is hoped, by this, to create some elasticity in the face of the different habits of consumption in different parts of France, whilst at the same time establishing the greatest possible degree of uniformity between the different regions.

Base : The base for this new series of indices is to be the average of the year 1930.

Frequency : The index for each region is to be published twice a year, based upon prices in the first fortnight of May and November.

[1]Given in Appendix II. The weights are still theoretical.

APPENDIX I.

Copy of the questionnaire upon Retail Prices circulated by the Statistique Générale to " Chefs-lieux " of each Département and other Towns with more than Ten Thousand Inhabitants.

To The Mayor of .....

In order to facilitate the collection of satisfactory statistics of the movement of the prices of staple commodities, will you please complete and return the questionnaire below before the end of next month, at the latest.

The prices to be reported are *those existing in the public retail markets*, for the current quality of each commodity. If there is no public market, please quote the usual price in the important trading houses of the town.

Retail Commodity Prices

	Fresh Meat	Frozen Meat
Beef : Boiling, Shin, Roasting Fillet.		
Veal : Breast, Square.		
Mutton : Breast.		
Ribs.		
Leg.		
Pork : Ribs.		
Shoulder		
Fat Bacon		
Boneless Ham.		

Ordinary White Bread.
(Best quality sold by weight).
Wheat Flour Retail.
Dried Cod.
French Lard.
Margarine.
Fresh Butter.
Gruyere Cheese.
Eggs.
Milk (at shop).

Average Quality Rice.
White Swiss Beans.
Split Peas.
Lentils.
Macaroni.
White Salt.
Ordinary Roasted Coffee.
Chicory.
Soft Sugar.
Chocolate.
White Salad Oil.
Ordinary Red Wine.
Family Beer.
Family Cider.
Paraffin Oil.
Methylated Spirits.
Coal Retail.
Firewood.
White Soap.
Gas for Lighting.[1]
Electricity for Lighting.[1]

Potatoes Retail : Common.
Red.
Dutch.

[1]For these please state the prices paid by householders, including municipal taxes.

APPENDIX II.

Standard Budget to be Adopted by the Cost of Living Committees of France showing the Weights to be Attached to Each Group and Sub-group.

A. *Food :* 60 *per cent.*	
Bread	9.0
Flour, Dough and Rice	2.0
Potatoes	2.5
Beans, Lentils, Dry Peas	2.5
Butchers' Meat and Pork	17.0
Poultry, Rabbit, Fish	1.0
Milk	3.0
Cheese	2.5
Eggs	2.0
Lard, Butter, Oil	6.0
Sugar	1.5
Coffee and Chicory	2.0
Chocolate, Salt and Vinegar	1.5
Drink, Wine, Beer and Cider	7.5
B. *Heating and Lighting :* 5 *per cent.*	
C. *Rent :* 10 *per cent.*	
D. *Clothing :* 15 *per cent*	
Man : Ready-made Woollen Suit	2.3
Workmen's Outfit in Blue Shirting	.5
Woman : Ready-made Woollen Dress	1.3
Garments Ready-made Woollen Coat	.8
Gown (Peignoir)	.6
Children ; Ready-made Woollen Suit for Boy	1.0
Girl's Ready-made Cotton and Wool Dress	.8
Black Cotton Overalls	.6
Footwear : Man, Woman, Children	2.4
Repairing	.8
Man's White Cotton Shirt	1.0
Woman's Cotton Chemise	.9
Man's Cotton Socks	1.0
Handkerchiefs	.3
Towels	.2
Sheets in good quality shirting	.7
E. *Sundries :* 10 *per cent.*	
White Soap	2.0
Washing Materials	.8
Hairdressing, Baths	1.5
Tobacco (Caporal ordinaire)	1.2
Newspaper	1.0
Cinema	1.2
Medical Expenses	1.5
Travelling Expenses	.8

GERMANY

WAGE STATISTICS

THE information which is given in this section relating to wages in Germany will be confined to the period since 1924. Comparisons between pre-war and post-war wages are hazardous, although they are available,[1] since the methods of collection have changed since 1913. Moreover, wage information for the years 1921–23 is extremely difficult of interpretation [2] and is, in large measure, unreliable because of the conditions produced by the intense post-war inflation.

In the period following the restoration of currency stability, the indices of wage rates provide the only continuous indication of wage movements. The wage rates material is very comprehensive, it is built up into a series of weighted averages by the German Federal Statistical Office for different classes of workers and for the whole of the skilled and unskilled workers covered. Its principal drawbacks are : firstly, that certain industries and occupations, such as clothing and boot and shoe, are excluded on the grounds that the workers within them cannot be conveniently grouped into the simple classification of " skilled " and " unskilled " ; secondly, that the averages for each industry, and all industries taken together, do not group together skilled and unskilled in a composite average but give separate figures for each class.

The material relating to earnings consists of a series of special enquiries, of recent date, into a number of important industries. In time, these enquiries will build up very valuable material for the provision of a continuous picture of earnings in German industry but, at the present, they are so few and isolated that their value is lessened although, for the textile industry, comparisons of the levels of earnings and the relation between earnings and rates at two dates are now possible. Fortunately, however, they provide the means, even now, for comparing the levels of wage rates and earnings in the industries which have been surveyed.

Figures of earnings in coal mines are available continuously in two forms.

I. WAGE RATES

The nature of the wage rate material is explained elsewhere in detail.[3] The value of this material is enhanced by the high proportion of workers in Germany whose wages are now based upon collective agreements.[4] And the samples upon which the German Federal Statistical Office bases its figures are very large. A summary of the material available is given in Tables I., II., III., and IV. below. Table I. shows the hourly wage rates for twelve groups of industries distinguishing skilled and unskilled workers. A similar table for weekly wage rates is not given since the agreed weekly wages can be ascertained by reference to agreed regular weekly hours of work, which are usually 48 per week. Table II. shows changes in Table I. using 1924 as base.

[1] See p. 47.

[2] See International Labour Office " Workers Standard of Life in Countries with a Depreciated Currency." Studies and Reports Series D. No. 15. 1925.

[3] See p. 46.

[4] Thus, taking 27 groups of industries and services covering a very large part of the national economy, the total numbers of wage earners and salary earners, as recorded by the 1925 Census was 14,400,000 The numbers covered by collective agreements were :

1925 ..	11,900,000	1928 ..	12,300,000
1926 ..	11,100,000	1929 ..	12,300,000
1927 ..	11,000,000		

TABLE I

HOURLY WAGE RATES (*a*), ACCORDING TO COLLECTIVE AGREEMENTS IN 12 INDUSTRIES IN GERMANY, DISTINGUISHING SKILLED AND UNSKILLED WORKERS. OCT., 1924–30

(Rpf.)

		1924 (*e*)	1925	1926	1927	1928	1929	1930
Coalmining (*b*) (*c*) .. .. (5 districts)	Skilled	83.0	95.9	106.1	112.5	121.1	123.9	123.9
	Unskilled	50.2	56.0	60.7	69.7	76.3	78.0	78.0
Metal Industry (*b*) (*c*) .. (25 principal centres)	Skilled	75.5	87.6	87.6	94.9	99.4	102.8	103.3
	Unskilled	49.0	60.3	61.6	67.3	73.5	77.1	77.4
Chemicals (*c*) .. .. .. (14 principal centres)	Skilled	66.0	86.4	87.2	94.5	103.4	107.9	107.9
	Unskilled	57.0	72.0	72.7	78.5	85.5	89.4	89.4
Building .. .. (34 centres)	Skilled	84.0	116.9	116.4	125.1	134.4	140.9	141.0
	Unskilled	70.0	94.9	93.7	101.6	110.7	116.1	116.2
Woodworking .. .. (25 principal centres)	Skilled	71.0	100.0	99.0	109.5	119.0	122.3	123.6
	Unskilled	61.0	86.6	85.6	94.0	102.5	105.3	106.5
Papermaking (*c*) .. .. (15 principal centres)	Skilled	51.0	68.1	68.4	75.5	82.9	98.2	98.4
	Unskilled	46.0	61.3	61.6	67.9	74.5	78.3	78.4
Printing .. .. (All categories of towns)	Skilled	67.0	95.9	95.9	104.9	111.9	116.9	116.9
	Unskilled	59.0	83.7	83.7	91.3	97.4	101.8	101.8
Textiles (Males) (*b*) (*c*) (18 principal centres)	Skilled	50.1	63.3	63.5	70.6	76.7	78.8	79.4
	Unskilled	42.0	53.4	53.6	59.5	64.3	66.1	66.7
Textiles (Females) (*b*) (*c*) (18 principal centres)	Skilled	40.0	45.9	45.5	52.3	56.2	57.8	58.1
	Unskilled	31.0	37.6	37.7	42.3	45.0	46.6	46.9
Brewing (*c*) .. .. .. (20 centres)	Skilled	78.3	100.0	102.6	113.8	124.1	129.1	129.6
	Unskilled	69.1	87.4	89.8	100.2	109.8	114.6	115.3
Baking and Confectionery (18 centres)..	Skilled	68.3	85.4	84.9	90.8	101.4	105.4	105.6
	Unskilled	61.2	73.7	73.3	78.4	87.4	90.7	90.8
Cardboard Goods (Males) (20 principal centres)	Skilled	56.1	80.0	77.4	84.3	92.4	97.2	97.2
	Unskilled	47.6	67.9	65.8	71.6	77.8	82.7	82.7
Cardboard Goods.. .. (Females) .. .. (20 principal centres)	Skilled	36.7	52.8	50.9	55.8	60.5	63.9	63.9
	Unskilled	30.3	43.6	42.0	46.2	49.9	52.8	52.8
Transport, State Railways (*c*) (*d*) .. .. (20 towns)	Skilled	66.7	79.8	82.0	88.6	95.9	99.8	99.8
	Unskilled	51.4	61.6	64.8	71.3	77.1	81.0	81.0

(*a*) Weighted average wages for full-time workers of highest age groups included in the collective agreements for nominal hours of employment in the districts or principal centres of the various industries.

(*b*) In mining, metal and textile industries, the figures relate to piece work basis time rate or hourly time rate plus piece rate bonus, according to collective agreements, for normal output; for unskilled workers the figures refer to time rates.

(*c*) Inclusive of allowance for dependents (for wife and 2 children) where such allowances are made.

(*d*) Time rates only, inclusive of local extras, exclusive of piece rate and output bonuses for skilled and unskilled workers.

(*e*) The figures for 1924 are not strictly comparable with those for later years since they refer to slightly different numbers of centres for the separate industries.

TABLE II.

HOURLY WAGE RATES, ACCORDING TO COLLECTIVE AGREEMENTS IN 12 INDUSTRIES IN GERMANY (*a*), DISTINGUISHING SKILLED AND UNSKILLED WORKERS. OCT., 1924–30

1924=100

		1924	1925	1926	1927	1928	1929	1930
Coalmining	Skilled	100	115.5	127.8	135.5	145.9	149.3	149.3
	Unskilled	100	111.6	120.9	138.8	152.0	155.4	155.4
Metal Industry	Skilled	100	116.0	116.0	125.7	131.7	136.2	136.8
	Unskilled	100	123.1	125.7	137.4	150.0	157.3	158.0
Chemicals	Skilled	100	130.9	132.1	143.2	156.7	163.5	163.5
	Unskilled	100	126.3	127.5	137.7	150.0	156.8	156.8
Building	Skilled	100	139.1	138.5	148.9	159.9	167.7	167.8
	Unskilled	100	135.6	133.9	145.2	158.2	165.8	166.0
Woodworking	Skilled	100	140.8	139.4	154.2	167.6	172.2	174.1
	Unskilled	100	141.9	140.3	154.1	168.0	172.6	174.6
Printing	Skilled	100	143.2	143.2	156.6	167.1	174.5	174.5
	Unskilled	100	141.9	141.9	154.8	165.1	172.6	172.6
Textiles (Male)	Skilled	100	126.3	126.7	140.9	153.1	157.3	158.5
	Unskilled.	100	127.1	127.6	141.7	153.1	157.4	158.8
Textiles (Female)	Skilled	100	114.8	113.8	130.8	140.5	144.5	145.3
	Unskilled	100	121.3	121.6	136.4	145.2	150.3	151.3
Brewing	Skilled	100	127.7	131.0	145.3	158.5	164.8	165.4
	Unskilled	100	126.5	129.9	145.0	158.9	165.8	166.8
Baking and Confectionery	Skilled	100	125.0	124.3	132.9	148.4	154.3	154.6
	Unskilled	100	120.4	119.8	128.1	142.8	148.2	148.4
Cardboard Goods .. .. (Male)	Skilled	100	142.6	138.0	150.3	164.7	173.3	173.3
	Unskilled	100	142.7	138.2	150.4	163.5	173.8	173.8
Cardboard Goods .. .. (Female)	Skilled	100	143.9	138.7	152.0	164.9	174.1	174.1
	Unskilled	100	143.9	138.6	152.5	164.7	174.3	174.3
Transport	Skilled	100	119.6	122.9	132.8	143.8	149.6	149.6
	Unskilled	100	119.9	126.1	138.7	150.0	157.6	157.6
Papermaking	Skilled	100	133.5	134.1	148.1	162.6	192.6	193.0
	Unskilled	100	133.3	133.9	147.6	162.0	170.2	170.4

(*a*) See notes to Table I.

Table III. shows a weighted average, classifying between skilled and unskilled workers, for three large groups of industries: construction, consumption and transport. The construction group includes: Coalmining, Metals, Chemicals, Building, Woodworking, Papermaking, Printing; the consumption group: Textiles, Brewing, Baking and Confectionery, Cardboard Goods; and the transport group: Steam Railways.

TABLE III.

HOURLY WAGE RATES, ACCORDING TO COLLECTIVE AGREEMENTS, IN "CONSTRUCTION," "CONSUMPTION" AND "TRANSPORT" INDUSTRIES (*a*). 1924–30

(Rpf.)

Oct.	Construction				Consumption				Transport			
	Skilled		Unskilled		Skilled		Unskilled		Skilled		Unskilled	
		1924 = 100		1924 = 100		1924 = 100		1924 = 100		1924 = 100		1924 = 100
1924	76.8	100	52.1	100	60.1	100	51.8	100	66.7	100	51.4	100
1925	94.6	123.2	67.7	129.9	64.4	107.2	54.5	105.2	79.8	119.6	61.6	119.9
1926	97.5	127.0	68.6	131.7	64.4	107.2	54.7	105.6	82.0	122.9	64.8	126.1
1927	105.0	136.7	75.8	145.5	71.5	119.0	60.3	116.4	88.6	132.8	71.3	138.7
1928	111.9	145.7	82.6	158.5	78.0	129.8	65.6	126.7	95.9	143.8	77.1	150.0
1929	116.1	151.2	85.9	164.9	79.6	132.5	67.4	130.1	99.8	149.6	81.0	157.6
1930	116.5	151.7	86.2	165.5	81.3	135.3	68.4	132.1	99.8	149.6	81.0	157.6

(*a*) See notes to Table I. above.

Table IV. shows the weighted average, for the 12 industrial groups taken together, again distinguishing between skilled and unskilled workers.

TABLE IV.

HOURLY WAGE RATES, ACCORDING TO COLLECTIVE AGREEMENTS IN 12 INDUSTRIES TAKEN TOGETHER, DISTINGUISHING SKILLED AND UNSKILLED WORKERS (*a*). 1924–30.

(Rpf.)

Oct.	Skilled		Unskilled	
		1924=100		1924=100
1924	74.4	100	52.1	100
1925	90.9	122.2	66.0	126.7
1926	93.5	125.7	66.9	128.4
1927	100.9	135.6	73.9	141.8
1928	107.9	145.0	80.6	154.7
1929	111.7	150.1	83.8	160.8
1930	111.9	150.4	84.0	161.2

(*a*) See notes to Table I. above.

It is essential, in drawing conclusions as to general wage movements in German industry from these series of wage rates, to bear in mind the precise nature of the material embodied in them. In all cases, the rates refer to the highest age group in the group of workers covered by the collective agreement, so that average wages in a whole industry may change considerably, through modifications in the relation between the wages of younger workers and those

included in the highest age class, without this being reflected in the wage rate series as published by the Federal German Statistical Office. Beyond that, the wage rates in general refer to male workers. In certain cases, where women are very important numerically, in Textiles and Cardboard Goods, rates for females are included but for the most part women's wage rates are not embodied in the composite indices. Finally, here as elsewhere, the wage rates give no exact idea of either the level or the movement of actual earnings. Many of the wage rates, indeed, finally embodied in averages have the advantage of being piece rates and not time rates. But it is brought out most clearly in the tables below[1] that the relations between rates and earnings may differ from one class of worker to another within the same industry and between one industry and another.

In the coalmining industry it is possible to make a rough comparison between the movement of rates and " earnings " per normal shift. The comparison is not exact. For the " rates " figures[2] the " skilled " group includes " coal and quarry hewers (not including haulers) " and the " unskilled " group includes " adult male surface workers excluding artisans." The figures of earnings per normal working shift [3] differentiate between " hewers of coal and ore " and " workers above ground (not including artisans, female and juvenile workers)." The rates are those for " male workers in the highest age group in the agreement " ; the earnings for all workers in the classes enumerated. Both rates and earnings, however, include family allowances and it appears that the comparison, whilst not strictly valid, may be taken as an approximate indication of the relative movement of the two quantities. It will be seen from Table V. that there is no exact coincidence of movement.

TABLE V.

RATES AND EARNINGS IN COALMINING. 1924–30

1924=100

	Rates (October)		Earnings per Normal Shift (July)	
	Hewers	Surface Workers	Hewers	Surface Workers
1924	100	100	100	100
1925	115.5	101.6	109.7	112.7
1926	127.8	120.9	115.6	120.0
1927	135.5	138.8	127.4	131.4
1928	145.9	152.0	135.1	142.3
1929	149.3	155.4	137.3	144.5
1930	149.3	155.4	137.7	147.3

On the other hand, the relation between hourly rates and earnings in Textiles has shown a remarkable constancy, between 1927 and 1930.[4]

II. EARNINGS

The general nature of the earnings enquiries which have been made since the war in certain German industries is described elsewhere.[5] The outstanding feature of these surveys is that earnings are collected among those groups of workers for which Trade Union wage rates are compiled by the German Federal

[1]See pp. 193-200.
[2]See p. 53.
[3]See p. 56.
[4]See p. 194.
[5]See p. 48.

Statistical Office. Whilst this has an advantage in making a direct comparison of earnings and rates possible, it has a drawback in that the earnings statistics relate only to a relatively small proportion of the total workers in each industry. It is important to bear in mind, therefore, that these wage enquiries are not designed to reveal the level of the movements of the average hourly earnings of the *total* workers in any industry but merely this level and movement for special classes in each industry. An earnings enquiry has now been carried through in the following industries: Textiles (at two dates), Chemicals, Woodworking, Heavy Metals, Iron and Steel, Building, Boot and Shoe, Printing, Lithographic Printing, Paper and Brewing. In Tables VI.–XVI. below summaries of the principal results are given but the form in which the German Federal Statistical Office presented its material has been modified in several ways. Details regarding a number of the less important sub-groups in each main industry have been omitted; where information has been given for time and piece workers separately a weighted average for the whole group has been calculated; and in some cases where details are given for a large number of age—groups of workers, the most important numerical group, which in every case corresponds to the highest age group, has alone been taken.

1.—*Textiles.*

The information regarding the textile industry is of special importance since the earnings enquiry has now been carried out at two dates, September, 1927, and September, 1930, and it is possible to make comparisons of the level of earnings and the relation between earnings and rates at the two periods, although the complete results of the second enquiry are not yet available (August, 1931).

The details of the 1927 enquiry are shown in Table VI. and the preliminary results of the 1930 in Table VII. The second enquiry was rather wider in scope than the first. It covered 121 towns, 466 establishments and 55,795 textile workers as against 58 towns, 263 establishments and 36,519 workers in the earlier enquiry, but the classes of employees in respect of which information was received remained the same.

Since the second enquiry covered smaller towns omitted by the first, a strictly valid comparison of the results at the two dates must be confined to those larger towns comprised within the 1927 investigation. Such a comparison, prepared by the German Federal Statistical Office, is shown in Table VIII. The marked change in general economic conditions between the two dates must be borne in mind. Unemployment and short time increased greatly, employment in general falling from 97 to 73 per cent. Table VIII. shows that average hourly earnings increased substantially between the two dates, although the cost of living remained roughly at the same level, and that the relation between earnings and rates was, for most classes of workers, very similar in 1927 and 1930. Despite the increase in hourly earnings, however, real weekly earnings fell as Table IX. shows. This was due partly to an increase in the legal deductions to be made for income tax and social insurance contributions but principally to a reduction in the number of hours worked per week as a result of the widespread depression.

TABLE VI.

EARNINGS IN THE TEXTILE INDUSTRY. SEPT., 1927

(1) Workers (Unskilled Workers above 20 years of age)	(2) Number of Work-people Covered by the Enquiry	(3) Average Hourly Earnings Including Allowances for Extras and Overtime and Social Allowances Rpf.	(4) Average Hourly Earnings Excluding Allowances for Extras and Overtime and Social Allowances Rpf.	(5) Average Piece Work Basis Time Rates or Hourly Time Rate by Collective Agreement Rpf.	(6) Average Hourly Earnings (Col. 4) expressed as Percentage of Rates (Col. 5)	(7) Average Gross Weekly Earnings R.M.
			All Textile Industries (a)			
Spinner (male)	953	87.0	84.9	71.4	118.9	44.29
Spinner (Female)	5,416	56.4	55.5	47.9	115.9	28.08
Weaver (Hosiery Worker) (Male)	14,154	84.3	82.2	64.7	127.0	42.09
(Female)	9,811	63.8	63.0	53.2	118.4	31.45
Average						
Skilled Worker (Male)	15,107	84.5	82.4	65.1	126.6	42.22
Skilled Worker (Female)	15,227	61.2	60.3	51.3	117.5	30.25
Unskilled Worker (Male)	3,156	63.6	61.3	55.6	110.3	33.78
Unskilled Worker (Female)	3,029	45.1	44.4	41.4	107.2	22.40
Weighted Average			*Cotton Industry*			
Spinner (Male)	513	86.0	83.5	72.1	115.8	43.99
Spinner (Female)	4,222	56.9	56.0	48.5	115.5	28.41
Weaver (Male)	3,891	72.4	70.4	60.5	116.4	36.69
Weaver (Female)	4,826	61.0	60.1	54.4	110.5	30.54
Unskilled Worker (Male)	1,785	62.1	59.5	54.7	108.8	33.51
Unskilled Worker (Female)	1,305	43.2	42.4	40.2	105.5	21.82
Weighted Average (b)			*Worsted Spinning*			
Spinner (Male)	215	93.6	92.0	75.9	121.5	47.32
Spinner (Female)	843	53.4	52.9	45.4	116.5	26.37
Unskilled Worker (Male)	530	67.7	66.3	57.0	116.3	35.00
Unskilled Worker (Female)	403	43.8	43.2	40.0	108.0	21.95
Weighted Average			*Wool Spinning*			
Spinner (Male)	225	83.1	81.4	65.6	124.1	42.05
Spinner (Female)	256	57.5	56.7	47.0	120.6	28.71
Unskilled Worker (Male)	75	59.9	56.4	53.2	106.0	33.31
Weighted Average			*Cloth Weaving*			
Weaver (Male)	6,307	87.1	85.3	64.9	131.4	43.12
Weaver (Female)	1,698	78.6	77.9	58.4	133.4	38.41
Unskilled Worker (Male)	359	66.1	64.3	58.4	110.1	34.84
Unskilled Worker (Female)	309	50.5	50.1	48.3	103.7	24.56

(*a*) Including : Cotton Industry, Worsted Spinning, Wool Spinning, Cloth Weaving, Linen Industry, Ribbon Weaving, Hosiery Manufacture, Other Knitted Goods, Lace Weaving, Velvet and Silk Weaving.

(*b*) Weighting according to the importance of the 7 districts.

TABLE VII.

EARNINGS IN THE TEXTILE INDUSTRY. SEPT., 1930 (*a*)

(1) Class of Workers	(2) Number of Workers	(3) Average Hourly Earnings Including Allowances for Extras, Overtime, Social Allowances, etc. Rpf.	(4) Average Hourly Earnings Excluding Allowances for Extras, Overtime, Social Allowances, etc. Rpf.	(5) Average Hourly Wage Rates According to Collective Agreements Rpf.	(6) Average Hourly Earnings in Col. (4) as percentage of Rates in Col. (5)	(7) Average Gross Weekly Earnings R.M.
Spinners (Male)	2,002	92.1	90.9	80.5	112.9	39.14
Spinners (Female)	7,400	60.7	60.3	53.3	113.1	24.73
Weavers (Male)	22,182	93.9	92.3	73.1	126.3	40.94
Weavers (Female)	13,423	71.7	70.5	60.7	116.1	29.57
Unskilled Workers (Male) (*b*)	5,321	70.7	68.9	62.8	109.7	31.80
Unskilled Workers (Female) (*b*)	5,467	51.3	50.9	46.8	108.8	22.06

(*a*) These figures show the influence of the economic depression. The average number of working hours per week was less than 44, with the exception of unskilled male workers. Extra shifts and overtime were quite insignificant in general. The textile industry covers the industries named on p. 193.

(*b*) Over 20 years of age.

TABLE VIII.

EARNINGS IN THE TEXTILE INDUSTRY. SEPT., 1927 and SEPT., 1930

	Average Hourly Earnings (*a*)		Hourly Earnings (*b*) as Percentage of Collective Agreement Rates	
	Sept., 1927 Rpf.	Sept., 1930 Rpf.	Sept., 1927	Sept., 1930
Spinners (Male)..	87.0	95.0	118.9	116.3
Spinners (Female)	56.4	61.2	115.9	113.2
Weavers (Male)..	84.3	94.8	127.0	125.6
Weavers (Female)	63.8	72.0	118.4	115.2
Unskilled Workers (Male) over 20 years of age	63.6	70.2	110.3	110.0
Unskilled Workers (Female) over 20 years of age	45.1	50.7	107.3	108.9

(*a*) Including allowances and extras.

(*b*) Excluding allowances and extras.

TABLE IX.

REAL WEEKLY EARNINGS (*a*) IN THE TEXTILE INDUSTRY SEPT., 1927 AND SEPT., 1930

	Sept., 1927 R.M.	Sept., 1930 R.M.
Spinners (Male)	27.21	24.62
Spinners (Female)	17.30	15.69
Weavers (Male)	25.74	24.78
Weavers (Female)	19.25	17.96
Unskilled Workers (Male) over 20 years of age	20.79	19.78
Unskilled Workers (Female) over 20 years of age	13.92	13.21

(*a*) After deductions of income tax and social insurance contributions.

2.—*Other Industries.*

The principal results in certain other industries are shown in Tables X.–XVI.

TABLE X.

EARNINGS IN THE WOODWORKING INDUSTRY (PIECE AND TIME WORKERS). MARCH, 1928

(1) Class of Workers (*a*)	(2) Number of Workers	(3) Average Hourly Earnings Including Allowances for Extras and Overtime and Social Allowances Rpf.	(4) Average Hourly Earnings Excluding Social Allowances Rpf.	(5) Average Hourly Rate according to Collective Agreement Rpf.	(6) Average Hourly Earnings Col. (4) as percentage of Rates in Col. (5)	(7) Average Gross Weekly Earnings R.M.
		Joiners and Cabinet Makers				
Skilled Male Workers (over 22 years)	30,157	120.1	118.5	110.3	107.4	54.81
Unskilled Male Workers (over 22 years)	4,462	89.4	89.0	87.6	101.6	41.48
		Musical Instrument Makers				
Skilled Male (*b*) Workers (over 22 years)	7,917	128.9	128.8	118.7	108.5	54.32
Semi-skilled Male Workers (over 22 years)	121	91.9	96.3	98.5	97.8	41.04
Unskilled Male (*b*) Workers (over 22 years)	736	90.7	90.5	89.0	101.7	40 33
Skilled Female (*b*) Workers (over 22 years)	551	—	77.8	77.6	100.3	29.64
Semi-skilled Female Workers (over 22 years)	153	—	73.7	72.8	101.2	29.6

(*a*) Wages for skilled workers on piece rates include a bonus of 15 per cent.

(*b*) These include, for the Berlin district, skilled male workers of 20 years and over, unskilled male workers of over 18 years and skilled female workers of over 18 years.

TABLE XI.

EARNINGS IN THE CHEMICAL INDUSTRY (PIECE AND TIME (*a*)) WORKERS JUNE, 1928.

(1) Class of Workers (*b*)	(2) Number of Workers	(3) Average Hourly Earnings excluding Extra Hours and Overtime Rpf.	(4) Agreed Minimum Hourly Rate Rpf.	(5) Actual Hourly Earnings Col. (3) as percentage of Rate Col. (4)	(6) Average Gross Weekly Earnings R.M.
		Dyes (Total of 8 Sections)			
Male Factory Workers ..	13,307	102.4	86.7	118.1	50.91
Female Workers	650	62.5	56.9	109.8	27.89
Skilled Artisans	7,158	125.5	107.2	117.1	53.41
		Nitrogen Compounds and Artificial Manures			
Male Factory Workers ..	15,569	105.1	83.9	125.3	53.77
Female Workers	—	—	—	—	—
Skilled Artisans	9,921	135.4	103.2	131.2	61.88
		Drugs and Fine Chemicals			
Male Factory Workers ..	6,641	93.9	83.4	112.6	45.12
Female Workers	3,939	63.6	60.6	105.0	28.39
Skilled Artisans	2,120	111.4	97.7	114.0	53.41
		Artificial Silk			
Male Factory Workers ..	4,584	87.8	75.7	116.0	41.63
Female Workers	5,105	60.6	49.5	122.4	26.15
Skilled Artisans	1,398	105.1	91.7	114.6	51.63
			Explosives		
Male Factory Workers ..	3,983	93.8	78.7	119.2	44.99
Female Workers	1,657	58.5	51.2	114.3	27.23
Skilled Artisans	1,234	113.3	93.2	121.6	57.69
		Total (All Branches Chemical Industry)			
Male Factory Workers ..	48,585	99.3	83.2	119.4	48.79
Female Workers	14,431	61.5	53.8	114.3	27.52
Skilled Artisans	23,253	125.7	102.4	122.8	63.23

(*a*) Time work including Premium Bonus Schemes.
(*b*) Male factory workers, above 21 years; female workers above 20 years; skilled workers above 21 years.

TABLE XII.

EARNINGS IN THE IRON AND STEEL INDUSTRY (PIECE AND TIME WORKERS). OCTOBER, 1928

(1) Class of Male Workers over 21 years	(2) Number of Workers	(3) Average Hourly Earnings Including Allowances for Extras and Overtime and Social Allowances Rpf.	(4) Average Hourly Earnings Excluding Allowances for Extras and Overtime and Social Allowances Rpf.	(5) Average Hourly Rate by Collective Agreement Rpf.	(6) Average Hourly Earnings (Col. 4) as percentage of Rate (Col. 5)	(7) Average Gross Weekly Earnings including Social Allowances R.M.
			Blast Furnace Works			
Smelters	484	109.8	107.2	81.1	132.2	58.85
Other Workers	7,199	101.9	99.1	(*a*)	(*a*)	57.51
			Steel Works			
Smelters	1,088	124.3	121.2	81.9	148.0	62.48
Other Workers	9,902	105.9	103.0	(*a*)	(*a*)	53.62
		Rolling, Hammering and Pressing Works				
Rollers	3,056	138.4	136.3	79.8	170.8	67.49
Other Workers	18,439	107.9	105.2	(*a*)	(*a*)	54.90
			Foundry Works			
Skilled Artisans	1,226	110.7	108.3	85.0	127.4	58.54
Semi-skilled Workers	2,454	100.0	97.7	74.9	130.4	52.71
Unskilled Workers	933	86.9	84.7	65.3	129.7	45.15
		Mechanical and Electrical Repair Shop				
Skilled Artisans	7,534	99.0	96.0	80.7	119.0	55.01
Semi-skilled Workers	2,166	87.9	85.2	71.6	119.0	48.31
Unskilled Workers	850	85.7	82.0	65.5	125.0	45.97

(*a*) For this group of workers the average hourly time-rate according to collective agreements or the piece rate basis time-rate could not be calculated as this group includes all kinds of workers except the specialists mentioned separately.

TABLE XIII.

EARNINGS IN THE HEAVY METAL INDUSTRIES (PIECE AND TIME WORKERS). OCTOBER, 1928

(1) Class of Workers (*a*)	(2) Number of Workers	(3) Average Hourly Earnings Including Allowances for Overtime and Social Allowances Rpf.	(4) Average Hourly Earnings Excluding Allowances for Overtime and Social Allowances Rpf.	(5) Average Hourly Rate according to Collective Agreement Rpf.	(6) Average Hourly Earnings Col. (4) as percentage of Rates in Col. (5)	(7) Average Gross Weekly Earnings R.M.
			Manufacture of Iron and Steel Goods			
Skilled Male Workers	12,429	109.3	108.7	85.0	127.9	53.51
Semi-skilled Male Workers ..	6,380	102.0	101.0	79.6	126.9	49.37
Unskilled Male Workers ..	3,951	91.2	90.0	72.6	124.0	44.35
Female Workers	3,978	60.2	60.0	50.9	117.9	27.11
			Manufacture of Metal Goods			
Skilled Male Workers	5,156	112.1	111.5	87.5	127.4	53.75
Semi-skilled Male Workers ..	4,126	93.8	92.8	76.7	121.0	45.76
Unskilled Male Workers ..	2,106	80.4	79.7	70.3	113.4	38.27
Female Workers	3,418	57.0	56.9	51.5	110.5	26.52
			Engineering (Machines)			
Skilled Male Workers	38,050	115.1	113.5	90.4	125.6	55.03
Semi-skilled Male Workers ..	17,824	99.9	98.5	81.2	121.3	47.97
Unskilled Male Workers ..	9,085	80.6	79.2	69.4	114.1	39.07
Female Workers	3,021	57.7	57.5	50.0	115.0	26.34
			Construction of Boilers and Apparatus			
Skilled Male Workers	7,722	118.9	117.9	99.5	118.5	56.74
Semi-skilled Male Workers ..	3,931	104.8	103.4	84.6	122.2	50.38
Unskilled Male Workers ..	1,679	81.4	80.2	72.5	110.6	39.84
Female Workers	777	60.7	60.5	54.2	111.6	27.80
			Shipbuilding			
Skilled Male Workers	6,979	112.5	110.1	98.7	111.6	53.58
Semi-skilled Male Workers ..	1,308	96.5	94.1	88.5	106.3	45.73
Unskilled Male Workers ..	1,090	81.8	80.5	78.0	103.2	37.01
			Construction of Vehicles, Airship and Aeroplanes			
Skilled Male Workers	17,644	123.5	122.6	92.7	132.3	57.31
Semi-skilled Male Workers ..	6,857	108.4	107.7	82.9	129.9	49.24
Unskilled Male Workers ..	2,789	86.4	85.7	72.6	118.0	40.67
Female Workers	1,050	65.7	65.4	52.3	125.0	28.36
			Construction of Railway Waggons			
Skilled Male Workers	6,379	114.8	113.8	94.4	120.6	54.56
Semi-skilled Male Workers ..	1,838	96.8	95.4	82.8	115.2	46.10
Unskilled Male Workers ..	1,108	77.4	76.1	69.2	110.0	37.87
Female Workers	244	57.1	57.1	48.5	117.7	26.10
			Total			
Skilled Male Workers	136,503	115.7	114.5	95.0	120.5	55.35
Semi-skilled Male Workers ..	61,175	101.9	100.8	83.2	121.2	48.58
Unskilled Male Workers ..	38,837	84.7	83.6	75.3	111.0	40.87
Female Workers	45,404	63.8	63.6	57.9	109.8	29.31

(*a*) Skilled, semi-skilled and unskilled male workers, over 21 years female workers over 18 years.

TABLE XIV.

EARNINGS IN THE PRINTING INDUSTRY (TIME WORKERS) JUNE, 1929

(1) Class of Workers (*a*)	(2) Number of Workers	(3) Average Hourly Earnings Including Allowances for Overtime and Social Allowances Rpf.	(4) Average Hourly Earnings Excluding Allowances for Overtime and Social Allowances Rpf.	(5) Average Hourly Rate according to Collective Agreement Rpf.	(6) Average Hourly Earnings Col. (4) as percentage of Rates in Col. (5)	(7) Average Gross Weekly Earnings R.M.
Hand Compositors	13,806	138.1	133.7	118.3	113.0	65.69
Machine Compositors	5,103	187.4	170.4	141.1	120.8	89.79
Printers	5,569	142.0	139.2	119.0	117.0	68.13
Rotary Printers	1,493	190.7	155.8	119.9	129.9	95.00
Stereotypers	1,447	184.5	164.0	119.5	137.2	89.81
Labourers	6,193	131.2	114.5	103.7	110.4	63.35
Female Labourers	2,536	64.4	63.4	57.5	110.3	29.76
Female Layers-on	4,177	74.1	73.4	69.7	105.3	34.65

(*a*) Female workers, over 21 years; male workers over 24 years.

TABLE XV.

EARNINGS IN THE LITHOGRAPHIC PRINTING INDUSTRY (TIME WORKERS). JULY, 1929

(1) Class of Workers (*a*)	(2) Number of Workers	(3) Average Hourly Earnings Including Allowances for Extras and Overtime and Social Allowances Rpf.	(4) Average Hourly Earnings Excluding Allowances for Extras and Overtime and Social Allowances Rpf.	(5) Average Hourly Wage Rate according to Collective Agreements Rpf.	(6) Average Hourly Earnings in Col. (4) as percentage of Rates in Col. (5)	(7) Average Gross Weekly Earnings R.M.
Skilled Workers	2,647	133.1	131.3	—	—	63.03
Offset Printers	1,214	160.6	156.1	—	—	76.86
Lithographers	1,542	139.6	138.3	—	—	65.56
Unskilled Workers	582	108.0	107.1	102.3	104.6	52.01
Other Male Workers	887	105.1	101.6	95.5	106.4	51.67
Female Layers-on	1,597	68.5	67.6	66.0	102.5	31.90
Female Sheet Collectors	1,094	61.4	60.4	59.0	102.3	28.69
Other Female Workers	1,366	58.0	55.9	53.1	105.2	27.01

(*a*) Female workers, over 21 years; others, over 24 years; figures for skilled workers over 24 years refer only to workers after the first year.

TABLE XVI.

EARNINGS IN BREWERIES. AUGUST, 1930

(1) Class of Workers	(2) Number of Workers (*a*)	(3) Average Hourly Earnings: Including Allowances for Extras and Overtime and Social Allowances	(4) Average Hourly Earnings: Excluding Allowances for Extras and Overtime and Social Allowances	(5) Average Hourly Wage Rate according to Collective Agreements(*a*)	(6) Average Hourly Earnings in Col. (4) as percentage of Rates in Col. (5)	(7) Average Gross Weekly Earnings
		Rpf.	Rpf.			R.M.
Brewers	7,993	124.3	121.6	120.8	100.6	57.62
Drivers of Motor Vehicles	1,774	124.6	118.6	118.1	100.4	64.98
Other Drivers	5,955	122.8	116.0	115.7	100.2	61.63
Delivery Men	3,423	116.8	112.4	111.8	100.6	57.50
Assistants	1,074	116.2	111.9	111.4	100.4	56.50
Male Labourers over 20 years	8,428	109.6	107.7	107.0	100.6	50.99
Female Labourers over 18 years	2,141	68.2	67.8	67.5	100.4	29.90

(*a*) According to the Census of June, 1925, the number of workers employed in Brewing proper, i.e., exclusive of workers employed for other purposes, was about 66,000. The enquiry includes, therefore, nearly half the number of workers (30,788).

3.—*Earnings in the Coalmining Industry.*

Figures of coalminers' earnings are published in two forms, one monthly and the other quarterly. The two sets of statistics differ in the number of workers covered by the enquiry, in the classification between different groups of workers and in the items included in earnings. The monthly statistics are neither rates nor pure earnings but represent the earnings, including family allowances but excluding allowances in kind, for an " average normal working shift," no account being taken of payments for extra shifts or overtime. Details are given for each coalmining region and for underground and surface workers. In Table XVII. below the weighted average for the whole country is given for July of the years 1924–30.

TABLE XVII.

EARNINGS IN AN AVERAGE NORMAL WORKING SHIFT AMONG COALMINE WORKERS IN GERMANY

July	Hewers		Surface Workers (*a*)	
	R.M.	1924=100	R.M.	1924=100
1924	7.27	100	4.94	100
1925	7.97	109.7	5.57	112.7
1926	8.40	115.6	5.93	120.0
1927	9.26	127.4	6.49	131.4
1928	9.82	135.1	7.03	142.3
1929	9.98	137.3	7.14	144.5
1930 (*b*)	10.01	137.7	7.28	147.3

(*a*) Not including artisans, females and juvenile workers.
(*b*) April.

The quarterly statistics differentiate among a larger number of classes of workers. The methods of compilation and the form of presentation of these figures are rather complicated and reference should be made to the details elsewhere.[1] The net effect of the methods adopted here, however, is that the earnings per shift for the whole of Germany and for each of the principal mining districts include extras for overtime and social allowances but not allowances in kind or extras of a like nature.[2] Table XVIII. below gives the earnings per shift for all workers for the whole country in coalmining and brown coalmining.

TABLE XVIII.

EARNINGS PER SHIFT AMONG COALMINE WORKERS IN GERMANY, 1924–30

First Quarter	Coalmines		Brown Coalmines	
	R.M.	1924=100	R.M.	1924=100
1924	4.90	100	4.48	100
1925	6.26	127.8	5.36	119.6
1926	6.93	141.4	6.20	138.4
1927	7.35	150.0	6.51	145.3
1928	7.79	159.0	7.18	160.3
1929	8.30	169.4	7.55	168.5
1930	8.49	173.3	7.70	171.9

It is not possible to calculate the hourly earnings, including allowances in kind, for the whole of Germany but for those areas for which special details are available this has been done by the International Labour Office.

[1] See pp. 56-58.
[2] For certain coalmining areas, however, details of allowances in kind and payments for holidays are available, e.g., see " Wages and Hours of Work in the Coalmining Industry (1925)." International Labour Office.

COST OF LIVING[1]

THE official[2] cost of living index in Germany in its present form dates from 1925 when the index was reconstructed after the re-establishment of monetary stability. The figures for the years 1925–30, with July, 1925 as base, are shown in Table I.

TABLE I.

INDEX NUMBER OF COST OF LIVING IN GERMANY

1925=100

July	Food	Heat and Light	Rent	Clothing	Sundries	Total
1925	100	100	100	100	100	100
1926	94	101	128	94	101	99
1927	99	102	141	90	99	105
1928	100	104	154	98	102	106
1929	101	107	154	99	104	108
1930	95	108	159	95	105	104

The methods employed in constructing this index are as follows:[3]

Food

The food index is based upon information received from the following 72 representative towns which were chosen in such a way as to give weight to towns of different sizes both industrial and agricultural.

Berlin	Erfurt	Weissenfels
Hamburg	Crefeld	Giessen
Koln	Lubeck	Schweinfurt
Leipzig	Hagen i. W.	Luneburg
Munich	Ludwigshafen	Eberswalde
Dresden	Darmstadt	Amberg
Breslau	Gera	Fulda
Essen	Gleiwitz	Straubing
Frankfurt a M.	Frankfurt a O.	Auerbach
Hannover	Dessau	Annaberg
Nurenberg	Coblenz	Senstenberg
Stuttgart	Oldenburg	Reichenbach
Chemnitz	Solingen	Zweibrucken
Dortmund	Halberstadt	Lahr
Magdeburg	Schwerin	Rastenburg
Bremen	Worms	Neustettin
Konigsberg	Heilbronn	Selb
Stettin	Eisenach	Demmin
Mannheim	Weimar	Marienwerder
Kiel	Gottingen	Blumenthal (Hannover)
Augsburg	Bautzen	Neustrelitz
Aix-la-Chapelle	Stolp i. P.	Sebnitz
Brunswick	Waldenburg	Grimma
Karlsruhe	Herford	Friedrichshafen

[1]For details of the changes which were made in the cost of living index 1920–25 reference should be made to "Wirtschaft und Statistik" No. 5. 1925.

[2]In addition to this official index for the whole of Germany, indices are prepared by a number of local authorities and private individuals both for special areas and the whole country.

[3]The German Central Statistical Office carried through special enquiries into cost of living in the years 1927–28 and it is now engaged upon a revision of the cost of living index number in the light of the results of these enquiries. The details of these budgetary enquiries are to be found in "Wirtschaft und Statistik" 1929 No. 22, 23, 24 and 1930 Nos. 2, 3, 5, 7, 8.

The price information for all groups save clothing is supplied by the local authorities whose agents collect it from retailers. Prices of clothing are, however, obtained directly by the Central Statistical Office. In the food, as in the other sub-indices, the weights given to different articles are based upon the estimated monthly consumption of a family of five—two adults, a boy of 14, a girl of 7, and a child of 18 months old.

The articles included, together with the monthly consumption of each, are shown below:

Rye Bread	40,000	Foreign Lard	2,250
White Bread	5,000	Cheese (low quality)	1,000
Wheaten Meal	4,000	Cheese (better quality)	750
Cereals	11,000	Salt Herring	1,500
Potatoes	50,000	Sugar	3,500
Vegetables	15,000	Eggs	28
Beef	3,500	Unskimmed Milk	35 litres
Pork	1,500	Coffee	250 grms.
Mutton	1,000	Coffee Substitute	1,250
German Bacon	500	Cocoa	1,000
Liver Sausage	2,000	Salt	2,000
German Butter	2,000		
Margarine	2,000		

All quantities are grms. unless otherwise stated.

It was found impossible to include fresh fruit in this list of articles. For the purpose of weighting the "outlays" upon this group of foods in each of the towns, the towns are divided into six groups according to population. The "outlays" in the towns in each population group are averaged by a simple arithmetic mean and these averages are then weighted by the total population in each population group in order to obtain the final figure.

Clothing

Information regarding clothing prices is obtained from the same group of towns and the averages constructed in the same way as mentioned above for Food. Fifteen items are included and the yearly consumption for the standard family assumed to be:

1 gent's and 1 boy's suit
1 girl's dress
1 woman's skirt
2 blouses
6 gent's shirts
6 women's chemises
16 metres of shirting
6 pairs gent's socks
6 pairs ladies stockings
1 pair gent's boots
1 pair women's boots
2 pairs children's boots
8 soling and heeling man's boots

The monthly "outlays" are determined by dividing the yearly outlays by 13.

Rent

Rents are obtained from the same towns and the final average "outlay" determined in the same way as for Food. The data refers to a two-roomed flat with kitchen but "without tenantable offices." The rent includes all the payments usually made by a tenant (i.e., for water, removal of refuse, lighting of building, tax on rent, etc.). On the other hand, no allowance is made for the cost of or depreciation upon stoves, cookers, etc., bought by the tenant. No arrangement is made to include rents of newly-built houses or furnished rooms.

Fuel and Lighting

The monthly consumption here is taken as:

Fuel		Lighting	
Coal	3 zentners	Gas	15 cub. metres
or Lignite	5 „	*or* Electricity	5 Kwstd.
or Lignite Briquettes	4 „		
or Gas Coke	3 „		
or Peat	6 „		
or Firewood	6 „		
or Gas	40 cub. metres		

For each town the commonest form of fuel and lighting is fixed upon and details collected each month for it. Averaging is carried through by the methods outlined under Food.

Sundries

The sundries group seeks to include a monthly outlay for cleaning, toilet and recreation. Twelve items and fares are included:

1 cake toilet soap
1,500 grms. household soap
2,000 grms soda
2 tins boot polish
1 floor cloth
1 rough towel
2 haircuts
8 shaves
1 daily newspaper (monthly subscription)
4 weekly magazines
6 pencils
4 cinema seats (cheap seats working-class district)

The articles chosen for the index can be taken as representative of a wide variety of articles of this general class and investigation has shown that little change is introduced by embodying other articles of this nature. For fares a round sum is included based upon the cost of railway travelling (fourth class); tram fares and the prices of bicycles.

Weighting

The weights employed for the construction of the total index are:

Food		54.77 per cent.
Rent		20.35 „
Heat and Lighting		5.55 „
Clothing		10.05 „
Fares	3.07 per cent.	9.28 „
Sundries	6.21 per cent.	

These figures are estimates. They are based largely on the results of budget enquiries in 1907 but the relative importance of the different groups has been modified, particularly in the fuel and lighting and sundries groups, in order to make some allowances for apparent changes in consumption habits since that date.

Base

The years 1913–14 are taken as base and, in the table above, this has been moved to 1925.

Frequency

Monthly.

ITALY

WAGE STATISTICS

THE information on wages in Italy is more comprehensive for the last four years than for earlier periods. The only continuous indices of wage movements since 1921 relate to a number of individual cities within the kingdom and none of these have been prepared upon an exact enough basis to give a completely reliable record of detailed movements. Statistics of earnings are collected both by the Fascisti Confederation of Industry and by the Ministry of Corporations, but the two-monthly index of the former runs only since 1928 and the six-monthly enquiry of the latter was begun in 1928 but the results of enquiries taken in 1929 and 1930 have not yet been published. In addition three earnings censuses have been taken by the Ministry of Corporations in 1923, 1925 and 1928 but the first was not upon a basis comparable with that of the second and third. The most important of this wage material is outlined below.

WAGE RATES

1. *Milan.* In Table I. below hourly wage rates in Milan are shown for a number of occupations 1924–30. The rates include cost of living allowances and any other extras of a like nature, and relate to adult workers only. This table has been prepared from material published by the International Labour Office in its Review. Up to 1928 the figures as published related to weekly rates for a 48-hour week and these have been reduced to an hourly basis.

TABLE I.

HOURLY WAGE RATES PAID TO ADULT WORKERS IN MILAN 1924—30. (Lira)

July	Building			Engineering		Furniture	Printing
	Masons	Carpenters	Labourers	Fitters	Labourers	Cabinet Makers	Hand Compositors
1924	2.90	3.25	1.95	2.99 (*a*)	2.34	3.40	4.03
1925	3.63	3.80	2.39	3.24	2.60	3.83	4.81
1926	4.00	4.20	2.60	3.44	2.80	4.17	5.28
1927	3.60	3.78	2.34	3.21	2.68	3.91	5.47
1928	3.45	3.60	2.25	3.01	2.40	3.91	4.53
1929	3.45	3.60	2.25	3.01	2.40	3.91	5.73
1930	3.45	3.60	2.25	3.01	2.40	3.91	4.44

(*a*) Average of 2 figures.

Upon the basis of the wage statistics collected by the Statistical Bureau of the city of Milan the Comitato per gli Indici del Movimento Economico Italiano has constructed an unweighted index of the movement of wage rates in three industries; engineering (turners and labourers); printing (bookbinders and printers); building (bricklayers and labourers).

TABLE II.

INDEX OF WAGE RATES IN ENGINEERING, PRINTING AND BUILDING IN MILAN. 1921–29

(July, 1924=100)

July	
1921	111.7
1922	104.0
1923	96.3
1924	100
1925	114.7
1926	121.0
1927	115.1
1928	106.4
1929	105.7

EARNINGS

1. *Rome.* The wage statistics collected in this city are in the form of hourly earnings (see p. 78). Weekly earnings are, however, also calculated by assuming a 48-hour week.

TABLE III.

HOURLY EARNINGS OF ADULT WORKERS IN ROME. 1924–30

(Lira)

July	Building			Engineering		Furniture	Printing
	Masons	Carpenters	Labourers	Fitters	Labourers	Cabinet Makers	Hand Compositors
1924	3.10	3.08	2.55	3.00	2.35 (*a*)	4.15 (*a*)	3.48
1925	3.90	3.90	2.85	3.60	2.40	4.90	3.64
1926	4.20	4.25	3.20	3.90	2.75	5.25	4.13
1927	3.75	3.75	2.90	3.35	2.30	4.30	3.92
1928	3.20	3.20	2.10	2.85	1.95	3.80	3.44
1929	3.40	3.50	2.60	3.40	2.20	3.75	3.85
1930	3.25	3.32	2.52	3.45	2.20	3.60	3.85

(*a*) Average of 2 figures.

The Comitato per gli Indici del Movimento Economico Italiano also calculates from this material an unweighted index showing the general movements in building (bricklayers, carpenters, labourers), and printing (hand and machine compositors and machinists) as a whole.

TABLE IV.

INDEX OF WEEKLY EARNINGS IN BUILDING AND PRINTING IN ROME. 1921–29
(July, 1924=100)

July	
1921	95.0
1922	99.0
1923	101.3
1924	100
1925	114.9
1926	129.7
1927	117.4
1928	101.3
1929	105.4

2. *Brescia.* In this city actual average daily earnings are computed for nine industries (see p. 78). The method of calculation for each industry is to divide the total wages paid in each quarter by the number of workers in each industry multiplied by the number of working days in the period. The average for the whole of the industries taken together is weighted by the total wages paid in each industry.

TABLE V.

INDEX OF AVERAGE DAILY EARNINGS IN NINE INDUSTRIAL GROUPS IN BRESCIA. 1921–29
(1924=100)

2nd Quarter	Total	Metals	Textiles	Chemicals	Leather and Hides	Mining and Quarrying	Building	Wood Working	Foodstuffs	Sundries
1921(*a*)	117.2	103.7	96.5	102.4	115.9	116.5	105.3	113.9	92.4	127.1
1922(*a*)	112.5	92.5	103.2	89.3	107.6	84.1	95.8	104.1	102.9	143.2
1923(*a*)	108.3	99.7	105.0	97.1	124.7	111.4	80.3	107.2	100.6	119.5
1924(*a*)	100	100	100	100	100	100	100	100	100	100
1925	131.3	125.7	120.8	123.8	118.3	109.7	125.9	109.7	86.2	148.9
1926	133.9	125.8	110.7	119.9	153.5	128.6	143.4	134.4	98.2	157.8
1927	140.2	133.2	129.4	124.0	140.7	139.3	135.9	143.0	95.1	156.5
1928	121.3	114.1	102.5	103.6	122.0	116.4	109.3	107.8	103.3	144.0
1929	129.3	137.6	104.2	117.4	126.1	129.9	111.0	97.7	102.0	138.8

(*a*) First six months.

3. *Fascisti Federation of Industry Two-monthly Enquiry into Average Hourly Earnings.* Certain details concerning the nature of these statistics are given above (p. 79). The average hourly earnings relate to all workers within the industries covered; both time and piece earnings and payment for normal and overtime hours are included. The final figure of hourly earnings is obtained by the use of the chain index since the firms reporting vary from time to time.

During 1928 information was asked for each month and the firms replying also gave details for the previous month. It was possible, therefore, to measure the percentage change in hourly earnings for the same firms from one month to another and to build up a continuous chain of hourly earnings in this way. From 1929, the information was obtained each two months but the firms replying provided information for the month of enquiry and the preceding two months so that, through the continual over-lapping of one month, a chain could again be constructed. This method has the disadvantage that, over a long period, errors may be introduced into the index unless the firms forwarding details remain largely the same. The fact, however, that these returns cover well over 1,000,000 workers, which is about 60 per cent. of the total in industry, suggests that the chain index for the whole of industry may be expected to escape any serious bias provided that each of the eleven industrial groups retains its appropriate weight in the final returns.

In Table VI. the index for the whole of industry is shown for certain months.

TABLE VI.

AVERAGE HOURLY EARNINGS OF ALL WORKERS IN ALL INDUSTRIES

	Calculated Hourly Earnings (Lira)	Index of Earnings (July, 1928—June 1929=100)
1928, March	2.02	101.6
1928, September	1.94	97.5
1929, March	1.98	99.6
1929, September	2.04	102.6
1930, March	2.00	100.6
1930, September	1.99	100.1
1931, March	1.81	91.0

The Central Institute of Statistics, in publishing this general index, also gives details for different parts of the country and for eleven industrial groups. No continuous series are calculated in these cases, however, but the information provided would make this possible.

4. *Censuses of Earnings by the Ministry of Corporations.* The Ministry of Corporations undertook censuses into earnings in 1923, 1925 and 1928[1]. The 1923 Census does not provide details comparable with those for the later years but it is possible to compare the 1925 and 1928 results although the firms included at the two dates varied somewhat. In addition, the Ministry of Corporations began, in 1928, what was intended to be a six-monthly enquiry into earnings and the form of the enquiry in September, 1928 is comparable with the earlier results. No subsequent results of the half-yearly enquiry have been published. Table VII. below gives the details of the 1925 Census and Table VIII. a comparison of the 1925 and 1928 results.

[1]See p. 80.

TABLE VII.

AVERAGE EARNINGS IN CERTAIN INDUSTRIES

MAY, 1925 (*a*)

Industry	Number of Establishments covered by Enquiry	Number of Workpeople covered by Enquiry	Average Earnings (Lira)		
			Without Overtime		With Overtime
			per hour	per day	per day
Woollen	422	65,708	2.03	16.22	16.85
Cotton Industry	966	228,668	1.73	13.85	14.38
Cotton Spinning and Doubling	248	96,271	1.69	13.37	13.86
Cotton Weaving ..	718	132,397	1.76	14.19	14.76
Silk Industry	1,160	160,623	1.31	10.62	10.96
Silk Reeling	666	94,208	1.10	8.94	9.26
Silk Throwing	328	23,052	1.09	8.80	9.02
Silk Weaving	136	31,007	1.83	14.68	14.97
Waste Mills	16	8,429	1.67	13.53	13.74
Silk Dyeing	14	3,927	3.03	24.26	26.74
Artificial Silk Industry	19	22,940	1.85	14.79	17.44
Iron Industry	67	48,384	3.23	25.92	28.06
Foundries	295	19,725	2.84	22,80	25.26
Shipbuilding	72	26,218	2.56	20.50	23.81
Engineering Industry ..	877	150,313	2.78	22.29	24.37
Motor Cars	57	27,231	3.45	27.66	30.98
Construction and Repair of Railway Stock	69	29,387	2.84	22.77	24.47
Machine Construction	201	26,453	2.74	21.96	24.65
Constructions Repair of Motors and Electrical Goods ..	41	11,174	2.77	22.17	24.10
General Engineering ..	509	56,068	2.42	19.51	20.89
Electrical Industry ..	330	14,734	2.88	23.19	24.65
Papermaking Industry ..	206	20,958	1.96	15.75	16.55
Mills Manufacturing Fine, Medium and Press Paper ..	51	14,329	2.12	17.00	17.95
Mills Manufacturing Packing Paper ..	89	4,801	1.65	13.22	13.83
Mills Manufacturing Coarse Paper ..	66	1,828	1.50	12.18	12.69
Phosphates	72	4,772	2.67	21.33	22.26
Total	4,486	763,043	2.07	16.62	17.77

(*a*) For the Silk Industry, August, 1925.

TABLE VIII.

AVERAGE HOURLY EARNINGS (EXCLUDING OVERTIME) OF ALL WORKERS IN CERTAIN INDUSTRIES. 1925–1928

Industry	May, 1925			March, 1928			September, 1928		
	No. of Establishments	No. of Workers	Hourly Earnings (Lira)	No. of Establishments	No. of Workers	Hourly Earnings (Lira)	No. of Establishments	No. of Workers	Hourly Earnings (Lira)
Silk Reeling	666	94,208	1.11	640	93,823	0.99	703	102,440	1.00
Silk Weaving	136	31,007	1.84	168	30,902	1.77	166	30,974	1.80
Artificial Silk Industry	19	22,940	1.87	22	35,055	1.85	24	33,254	1.91
Cotton Industry	966	228,668	1.74	811	214,320	1.61	880	217,979	1.60
Wool Industry	422	65,708	2.04	422	72,847	1.86	446	76,327	1.85
Iron and Steel Industry	67	48,384	3.25	63	53,566	3.06	63	57,297	3.05
Foundries	295	19,725	2.85	194	15,284	2.72	211	17,268	2.68
Railway Stock Construction	69	29,387	2.84	58	27,628	2.59	60	28,315	2.51
Construction of Electrical Material	41	11,174	2.77	80	16,724	2.68	85	17,871	2.61
General Engineering	509	56,068	2.45	368	52,204	2.45	456	59,460	2.35
Shipbuilding	72	26,218	2.62	31	25,738	2.64	32	25,622	2.63
Phosphates Industry	72	4,772	2.68	74	7,119	2.51	73	7,740	2.58
Papermaking Industry	206	20,961	1.99	215	22,629	1.96	225	23,231	1.96

COST OF LIVING STATISTICS

I. LOCAL INDICES, 1921–27

For the years previous to 1927 there is no official cost of living index for the whole of Italy. A large number of towns, however, prepared their own cost of living index numbers. Of these the most commonly quoted was that for Milan. This index was based upon the result of an enquiry made by Professor Pugliese in July, 1913 into the food consumption in 51 working-class families in different occupations in that city. The Milan index is shown below in Table I. for the years 1921–27.

TABLE I.

INDEX OF COST OF LIVING IN MILAN
(JULY, 1924=100)

July	
1921	96.5
1922	95.3
1923	95.1
1924	100
1925	116.8
1926	126.8
1927	107.0

Other indices for groups of towns were also constructed by different authorities and published by the Central Institute of Statistics. Two of these indices, one for Milan and Turin taken together and one for all the towns for which information was available taken together, are shown in Table II. for the years 1921–27.

TABLE II.

INDICES OF COST OF LIVING IN MILAN AND TURIN, AND IN ALL TOWNS FOR WHICH INFORMATION WAS AVAILABLE
(JUNE, 1924=100)

June	Milan and Turin	All Towns (*a*)
1921 ..	96.8	—
1922 ..	96.8	97.4
1923 ..	97.8	99.2
1924 ..	100	100
1925 ..	120.8	113.6
1926 ..	131.6	124.0
1927 ..	121.3	112.3

(*a*) This index was calculated by the Statistical Office of Milan. The towns normally included were: Turin, Genoa, Milan, Venice, Trieste, Bologna, Florence, Rome, Naples, Messina.

II. THE NATIONAL INDEX 1927–31

From June, 1927 an official cost of living index number for the whole country has been prepared by the Central Institute of Statistics. The material collected is presented in several forms; separate indices are given for each of a large number of towns and regions and in these cases the movements in the food, clothing, housing, fuel and miscellaneous indices are also shown separately. The index for the whole country does not distinguish between these different components. This index is shown in Table III.

TABLE III.

INDEX OF COST OF LIVING IN ITALY
(JUNE, 1927=100)

June	
1927	100
1928	92.8
1929	94.1
1930	90.6
1931	82.7

The national index presents certain points of interest. In the first place it is constructed from a series of indices obtained for a number of towns in the country. From these, weighted indices are then constructed for each of 14 districts and finally a weighted index for the whole country. The number of towns ranges around 50, the Central Institute of Statistics having power to demand an index from all towns with more than 100,000 inhabitants and other towns specially suitable either because they are the chief towns of the province or because they have more than 50,000 inhabitants and possess a suitable Statistical Department.

Secondly, the weights employed for the determination of the national and regional indices are based not upon total population but upon the numbers employed by industrial and commercial establishments at the Census of October, 1927.

Thirdly, an attempt is made to make allowances for differences in the habits of consumption in different parts of the country. The index for each town is based upon the cost of procuring a group of goods and services. The budget is an estimate of the weekly consumption of a working-class family of two adults and three children under 10 years of age. For the groups "Rent" and "Sundries" uniform quotas have been fixed for all towns. For the groups "Food," "Clothing," and "Heating and Lighting" the quota varies from one town to another in conformity with estimates of the different habits of consumption in different parts of the country. In the case of fruit and vegetables, the items included also vary from season to season. All the budgets are determined, by estimate, by the Central Institute of Statistics. The choice of qualities of goods, within the range fixed by the Central Bureau, is left to the local authorities, but once the qualities have been fixed they must remain constant. The prices in each town are collected by the staff of the Statistical Office of the town. Prices must always be obtained from the same shops and no use is to be made of market prices or price lists of any kind.

Further details for each sub-group are given below:

Food: As stated above, the basis of the weekly consumption of the standard family is fixed by the Central Institute and the stipulated quantities and qualities vary from one town to another. Normally, however, the foods for which the local authorities must provide information are as follows:

Bread	Potatoes
Maize Meal	Vegetables
Rice	Fruit
Macaroni, etc.	Fresh Fish
Dried Beans	Eggs
Beef[1]	Milk
Cheese[2]	Sugar
Cod[3]	Roasted Coffee
Olive Oil (pure)	Butter
Wine	Lard or Fat

In order to provide typical cases of the quantities of food included in the weekly budget, the details for Milan and Rome are given below:

	Rome	Milan		Rome	Milan
Bread	12 Kg.	12 Kg.	Potatoes ..	1.5 Kg.	3 Kg.
Rice	1 Kg.	3 Kg.	Vegetables ..	5 Kg.	5 Kg.
Macaroni, etc.	3 Kg.	2 Kg.	Fruit	2 Kg.	1 Kg.
Dried Beans ..	.75 Kg.	.5 Kg.	Fresh Fish ..	.3 Kg.	—
Beef	2.5 Kg.	2.5 Kg.	Eggs	10	10
Cheese	.5 Kg.	.5 Kg.	Milk	6 Lts.	6 Lts.
Cod	.4 Kg.	.2 Kg.	Sugar	.6 Kg.	.8 Kg.
Olive Oil	.6 Lts.	.3 Lts.	Coffee	.18 Kg.	.2 Kg.
Wine	6 Lts.	6 Lts.	Butter	.15 Kg.	.4 Kg.
			Lard	.3 Kg	.35 Kg.

As was mentioned above, certain items of vegetables and fruit are included

[1]Beef without bones. The price of frozen beef must enter into the price in the proportion of 1 to 2 (1 of frozen meat and 2 of fresh meat) provided that frozen meat is used in the town to any great extent.

[2]Class of cheese generally used for flavouring.

[3]Dry or fresh cod according to local conditions.

or excluded according to season. Thus in Milan the list of vegetables comprised within the budget is as follows:

Carrots, Savoy Cabbage, Onions, Turnips, Lettuce	All months
Cooked Beetroot	January, February, March, April, September, October, November,
Beetroot	January, February, March, April, May, June, September, October, November, December.
Leeks	January, February, March, April, May, June, October, November, December.
Chicory with roots	January, February, March, April, July, August, September, October, November, December.
Chicory	April, July, August, September, October, November, December.
Lettuce Romana	May, June.
Marrow	August, September, October, November, December.
Fennel	January, February, March, April, May, November, December.
Topinambour	January, February, March.
Spinach	April, May, June.
Green Peas	April, May.
Borlotti	July, August, September.
Beans	June, July.
Tomatoes	July, August.
Small Marrows	July, August, September.
Melanzanas	July.
Peppercorns	October.

In Parma the list is quite different:

Dry Garlic, Onions	All months.
Spinach	January, February, March.
Raddishes	January, February, March, April, November, December.
Cabbages	January, February, March, April.
Lettuce	February, March, April, May, June, July, August.
Small Raddish	March, April, Mayl
Fennel	April, May, June.
Asparagus	May, June.
Artichokes	May.
Peas	May, June.
Spring Cabbage	June.
Beans, Large	June, July.
Beans, Small	June.
Girkins, Small	July, August, September, October, November, December.
Green Kale	July, August, September, October, November, December.
Peppercorns	July, August, September.
Tomatoes	July, August, September.
Green Salad	October, November, December.

There is a similar seasonal selection of fruits in Milan:

Apples	All months except June.
Pears	January, June, July, August, September, October, November, December.
Oranges	January, February, March, April, May, December.
Fresh Plums	June, July, August, September.
Japanese Nespole	April, May, June.
Fresh Figs	July, August, September, October.
Black Grapes	September, October, November.
Pomegranates	October, November, December.
Chestnuts	October, November, December.
Nespole	November, December.
Shelled Chestnuts	January, February, March, April, May, June.
Cuneo Chestnuts	January, February, March, April.
Dried Figs	January, February, March, April, May.
Cherries	June.

The prices of foodstuffs are obtained from a number of shops, normally used by working-class people, in the centre of each town. For towns with a population exceeding 200,000 the town is divided up into 4 or 5 districts and information collected from 4 to 6 shops in each district. The instructions which the Central Institute provides for the Local Authorities stipulate that "a fair proportion of co-operative societies and workers' stores shall be included. Thus it may be decided that of 15 shops at which the price of rice is to be obtained, 3 are to be workers' stores if it appears that these stores sell about one-fifth of the rice consumed by the working classes." An enquiry form must be compiled for each shop and upon it the prices previously declared must also be stated. The prices are ascertained each Saturday and, in the case of fruit and vegetables, at the same hour of the day from one week to another.

Clothing. The quantities of each item for which prices are collected in this group represent the estimated annual consumption of this class of goods for the standard family. The actual items included vary slightly from one town to another but the details given below showing the estimated annual consumption for the city of Rome are representative.

Sheeting, etc.	
Calico for Clothes	51 metres
Cotton Material	41.77 metres
Towelling	5 metres
Wool and Cotton for Vests and Stockings	
Ordinary Wool Quality No. 1	800 grams
Black Cotton for Stockings	550 grams
Dress Materials	
Men's Black Suiting	3 metres
Men's Cheviot Suiting	3 metres
Women's Dress Material	3 metres
Black Gabardine, Women	3 metres
Ordinary Footwear	
Men's Black Boots	2 pairs
Ladies' Black Shoes	2 pairs
Boy's Boots	4 pairs

The instructions to the local authorities by the Central Institute of Statistics stipulate that "in order to maintain constancy of quality and type, the shops chosen shall be few in number and long-established." In addition each enquiry form is accompanied by a sample to prevent change in quality in the article for which the quotation is made.

Prices are obtained in May, June, July, October, November, and December as these are the months in which purchases are usually made. For the other months the last reported price is used.

Rent. The information collected must refer to "standard living quarters comprising three rooms and a kitchen." Where information is obtained for other types of accommodation, estimates must be made to determine the cost of the standard accommodation. The cost obtained is that of the yearly rent and the enquiry is made annually.

The information is collected by sending a direct enquiry to the heads of working-class families. The numbers of families making replies varies from one

town to another but the standard aimed at is about 50 for towns with less than 100,000 inhabitants and 100–150 for the biggest cities.

Heating and Lighting. The items included under this group vary from one town to another. Normally, however, the information is obtained for :

For Cooking :
Gas or Dry Firewood or Coal or Coke.
For Lighting :
Electricity.
For Heating :
Coke, or Firewood or Coal.

In the case of Rome the details are as follows, the quantities representing the annual consumption :

For Cooking :	
Gas	365 cub. metres
For Lighting :	
Electricity	104 Kwh.
For Heating :	
Firewood	1,100 kilos.
Coal	500 kilos.

Only a small number of shops are requested to give this information. For gas, electricity and wood or coal for cooking purposes it is obtained once a month. For coal and wood for heating purposes it is obtained only in December, January, and February, in the other months the last ascertained price being repeated.

Sundries. The items normally included, with the quantities for the estimated annual consumption, for each city are shown below :

Trams	1,460 journeys
Newspapers	365 copies
State Insurance :	
Trade Union Subscription—average of annual payments of a bricklayer and a hand compositor.	
School Expenses :	
Exercise Paper	10 kilos.
Pen Nibs	12 dozen
Pencils	4
Ink	2 litres
Books	
Crockery and Glassware :	
Ordinary Glasses	20
Ordinary Plates	20
Medical :	
Doctor's visits	10
Castor Oil	.2 kilos.
Cod Liver Oil	1 kilo.
Cream of Tartar	1 kilo.
Cotton Wool	.5 kilo.
Tincture of Iodine	.1 kilo.
Linseed	2 kilos.

Weighting. It was explained above that the cost of living index for each town is based upon the cost of a budget of goods and services which is estimated by the Central Institute of Statistics. No comprehensive budgetary enquiries appear to have been made in Italy recently. The weighting, therefore, both of the

different items within the sub-group and the sub-groups themselves is determined by the standard budgets adopted.

The following methods are adopted in the calculation of the cost of living indices for each town. When the prices have been obtained by the local authorities they are sent to the Central Institute of Statistics. The various quotations provided for each article are then averaged, without weighting, to obtain a single price for it. It then becomes possible to group together the cost of all items in the standard weekly budget, adjustments having to be made in cases where the cost is obtained for an annual budget.

The cost of living indices thus obtained for each town are grouped together to form indices for a number of regions and, finally, an index for the whole country. For this purpose weights are adopted based upon the numbers employed by the industrial and commercial establishments at the Census on October 15th, 1927, in each town and region.

Frequency. The index is published monthly although, as shown above, the price information for some items is collected only at longer intervals. As the national index is first published each month it is provisional since, if any town does not send in its return at an early enough date, the figure is estimated by applying to the last calculation the percentage movement in the index of the nearest town.

Base. June, 1927=100.

III. LOCAL INDICES, 1927–30

As explained above, the Central Institute of Statistics in the compilation of the National Index, prepares indices for each of a large number of towns. These indices are shown below for certain of the most important towns in order to reveal differences in the movement of cost of living in different parts of the country. The Institute issues a warning, however, that they cannot be used to show the relative level of the cost of living in the different areas.

TABLE IV.

COST OF LIVING INDICES FOR CERTAIN IMPORTANT TOWNS

1927–31

Yearly Average	Turin	Milan	Genoa	Venice	Trieste	Bologna	Florence	Rome	Naples
1927 (*a*) ..	93.6	92.7	92.7	92.8	98.1	94.9	93.4	93.7	96.9
1928	91.8	90.2	92.0	91.9	98.7	91.8	92.6	92.3	95.8
1929	95.0	92.8	94.0	93.5	99.2	92.7	93.0	95.6	96.6
1930	93.8	90.2	92.2	88.8	94.9	85.9	88.4	93.8	93.6
1931 (June)	86.5	83.1	85.4	77.5	86.6	75.8	83.5	85.3	83.8

(*a*) Six months' average.

UNITED KINGDOM

WAGE STATISTICS

THE wage material available in the United Kingdom is more comprehensive and continuous for rates than for actual earnings. Official censuses of earnings were, however, taken in 1924 and 1928, although not upon an exactly comparable basis; and in addition earnings per man-shift in coalmines are published regularly and earnings for a number of classes of workpeople on railways are available for one week in each year. Other material relating to earnings in special groups of trades is collected by associations of manufacturers or workpeople and an important wage index, prepared by Professor Bowley, is published in the London and Cambridge Economic Service.

I. Wage Rates

The Ministry of Labour collects and publishes regularly details of standard time rates of Wages and Hours of Labour.[1] The more important of these time rates, together with certain information concerning the movements of piece rates in a number of industries, are published in the Abstract of Labour Statistics. In Table I. below weekly rates of wages and normal weekly hours of labour are given for a number of occupations 1920–30.

[1]See p. 82.

LEVEL OF WEEKLY RATES OF WAGES FOR ADULT WORKERS IN CERTAIN OCCUPATIONS IN THE UNITED KINGDOM

Period	Engineering (1)				Shipbuilding (2)			Boot and Shoe (3)			Furniture (4)			Printing & Bookbinding (5)	
Dec. 31st	Fitters and Turners	Iron-Moulders	Labourers	Pattern-Makers	Shipwrights	Shipjoiners	Labourers	Men (Heel building etc).	Men (other Depts).	Women	Cabinet Makers	Upholsterers	French Polishers	Hand Compositors	Bookbinders
1920	89/7	93/6	70/9	94/4	93/1	101/4	70/5	65/–	68/–	40/–	101/3	101/1	101/1	93/3	93/4
1921	76/9	80/4	59/3	81/1	78/3	80/4	58/11	65/–	68/–	40/–	87/6	87/3	87/2	88/3	85/11
1922	56/1	59/9	40/3	60/6	51/11	54/1	39/0	57/–	60/–	36/–	75/11	75/9	75/8	76/11	75/10
1923	55/0	58/11	40/1	59/5	48/7	50/9	38/5	57/–	60/–	36/–	71/10	71/9	71/7	73/9	73/4
1924	56/6	60/0	40/1	60/11	55/7	57/9	38/5	57/–	60/–	36/–	74/4	74/3	74/2	73/9	73/4
1925	56/6	60/0	40/1	60/11	55/7	57/9	38/5	57/–	60/–	36/–	74/6	74/4	74/3	73/10	73/4
1926	56/6	60/0	40/1	60/11	55/7	57/9	38/5	60/–	60/–	36/–	74/–	73/11	73/10	73/10	73/7
1927	58/1	61/8	41/8	62/6	55/7	57/9	38/5	56/–	56/–	34/–	73/2	73/1	73/–	73/10	73/7
1928	58/9	62/1	41/11	63/4	58/7	57/9	39/11	56/–	56/–	34/–	73/7	73/6	73/5	73/10	73/7
1929	58/9	62/1	41/11	63/4	58/7	57/11	39/11	56/–	56/–	34/–	73/2	73/–	72/11	73/10	73/7
1930	59/1	62/4	42/1	63/4	59/11	60/0	40/11	56/–	56/–	34/–	72/5	72/–	71/11	73/10	73/7
Normal Weekly hours	47	47	47	47	47 (*a*)	47 (*a*)	47 (*b*)				44–47	44–47		48	48

(*a*) For Repair Work London, 45 hours.
(*b*) London 45 hours.
(*c*) During Statutory Summer Time, for remainder of year 44 hours.
(*d*) In England and Wales Generally 44–47 in Scotland; 47 Belfast.

(1) Average of recognised rates in 16 principal centres.
(2) Average of recognised rates in 9 principal centres.
(3) National Agreed Minimum time rates.
(4) Average of recognised rates in 20 large towns.
(5) Average of recognised rates in 26 large towns.

Period	Building (6)							Electrical Installation (7)	Baking (8)	Railways (9)					Tramways (10)		Local Authorities (11)	Dock Labour (12)
Dec. 31st	Bricklayers	Masons	Carpenters Joiners	Plumbers	Plasterers	Painters	Labourers	Wiremen	Table Hands	Engine Drivers	Goods Porters	Passenger Porters Class 2	Permanent Way Labourers	Permanent Way Gangers	Drivers	Conductors	Labourers	General Cargo workers (per day)
1920	100/10	101/–	100/8	102/6	100/8	99/10	87/8	104/9	82/11	88/0–106/0	71/6	67/0	71/6	77/0	73/8	70/3	74/8	16/2
1921	88/4	88/7	88/2	90/6	88/3	87/11	70/1	92/8	74/8	80/0– 98/0	63/6	59/0	63/6	69/0	68/9	65/4	66/0	14/4
1922	71/4	71/7	71/3	73/8	71/4	71/1	53/4	76/6	67/0	72/0– 90/0	51/6	47/0	51/6	57/0	59/11	56/6	54/10	11/7
1923	69/–	69/3	68/11	69/3	69/4	68/3	51/7	70/2	63/9	72/0– 90/0	49/0	45/0	49/0	54/0	58/9	55/5	51/5	10/5
1924	73/5	73/7	73/4	73/6	73/9	72/6	55/6	75/10	64/10	72/0– 90/0	49/0	45/0	49/0	54/0	59/8	56/1	53/0	12/3
1925	73/8	73/10	73/7	73/8	74/0	73/0	55/8	75/10	64/10	72/0– 90/0	50/0	46/0	50/0	55/0	59/9	56/2	53/4	12/3
1926	73/10	74/0	73/10	73/11	75/0	73/4	55/10	75/10	64/10	72/0– 90/0	49/0	45/0	49/0	54/0	59/10	56/2	53/3	12/3
1927	74/1	74/2	73/11	74/0	75/8	73/4	55/11	74/5	64/4	72/0– 90/0	48/0	44/0	48/0	53/0	59/11	56/5	52/7	12/3
1928	72/6	72/8	72/5	72/5	73/10	71/11	54/3	74/5	64/2	72/0– 90/0*	48/0*	44/0*	48/0*	53/0*	59/10	56/4	52/5	12/3
1929	72/4	72/6	72/3	72/3	73/2	71/10	54/1	74/5	64/1	72/0– 90/0*	47/0*	43/0*	47/0*	52/0*	60/0	56/6	52/5	12/3
1930	70/7	70/9	70/7	70/7	71/5	70/3	52/7	75/3	63/5	72/0– 90/0	46/0	42/0	46/0	52/0	60/0	56/6	52/5	12/3
Normal weekly hours	44-46½	44–46½ (*c*)	44–46½ (*c*)	44–46½ (*c*)	44–46½ (*c*)	44–46½ (*c*)	44–46½ (*c*)	47	48 (*d*)						48	48	44–48	

(6) Average of recognised rates in 39 large towns. Weekly rates computed by multiplying hourly rates by the average number of hours in a full ordinary week, the summer and winter hours being taken into account for this purpose.
(7) Average of recognised rates in 12 large towns.
(8) Average of recognised rates in 26 large towns.
(9) Agreed Standard Rates, Figures for porters and Permanent Way Men relate to rates paid in "industrial areas." For Engine Drivers extra payment was made to those performing over a certain mileage per day.
(10) Average of recognised rates in 12 large towns.
(11) Non-trading services. Averages of rates in 28 large towns.
(12) Daily rates average of recognised minimum rates in 10 large ports.
* Less 2½%.

Upon the basis of wage movements for the industries and occupations mentioned above as given in the Abstract of Labour Statistics, the Ministry publishes an estimate of the average percentage increase over 1914 of weekly full-time rates for the whole of these classes of workpeople. The average is unweighted, and only records changes in a very general and approximate manner. It is given in Table II.

TABLE II.

ESTIMATED AVERAGE PERCENTAGE INCREASE OVER JULY, 1914 OF WEEKLY FULL TIME RATES OF WAGES OF CERTAIN CLASSES OF ADULT WORKPEOPLE (*a*)

31st December	
1920	170–180
1921	110–115
1922	70– 75
1923	65– 70
1924	70– 75
1925	75
1926	75
1927	70– 75
1928	70– 75
1929	70– 74
1930	70– 74

(*a*) In addition to the occupations given in Table I., the averages of Table II. reflect wage movements in Agriculture; Coalmining; Cotton; Woollen and Worsted; Hosiery; Textile Bleaching, Dyeing and Finishing; Road Transport; Shipping.

These figures of wage rates should not be used without a full realization of their limitations:

(1) In the first place the fact that the rates published are only those which have been embodied in Collective Agreements, Arbitration Awards, Statutory Orders, or recognised Minimum Rates necessarily limits their comprehensiveness. As the Ministry of Labour points out "the rates of wages actually paid to individual workpeople, or to particular sections of workpeople, may, in a considerable proportion of cases, have been altered since 1914, independently of the general changes jointly agreed upon by Employers' Associations and Trade Unions, or fixed by Awards, Orders, etc. Moreover, no information exists as to the changes which have occurred in rates of wages in industries in which neither standard nor minimum rates, nor the general amounts of increase or decrease in rates of wages, have been fixed by Collective Agreements, Arbitration Awards, Statutory Orders, etc." Collective Agreements, however, are very widely entered into in British industry and very large groups of workers are

covered by statutory orders, as in the case of Trade Board industries, or by long-established piece lists, such as those operating in the cotton and woollen industries.

(2) The wage rates are collected only for a number of occupations in each industry and for a number of towns for each occupation. Since unweighted averages are used in producing the final figures some bias may be introduced in this way.

(3) It is not possible to determine how far movements in wage rates have faithfully recorded movements in either weekly or hourly earnings.[1] It is extremely probable, however, that the great deal of short time working which has existed in many British industries since 1921 will have meant that average weekly earnings and weekly full-time rates have moved at times in different directions. On the other hand in those industries in which piece rates are common, it seems that technical developments have rendered wage rates an unsatisfactory index of hourly earnings. In certain cases it is possible to compare roughly the movements of the actual levels of wage rates and earnings, and in these cases, no coincidence is to be found. Thus, in the case of Fitters, Turners, Patternmakers and Moulders, it is possible to compare weekly full-time rates of wages and those of actual weekly earnings.

TABLE III.

	Fitters and Turners	Fitters	Turners	Patternmakers		Moulders	
	Rates (*a*)	Earnings (*b*)	Earnings (*b*)	Rates (*a*)	Earnings (*b*)	Rates (*a*)	Earnings (*b*)
1924	100	100	100	100	100	100	100
1927	102.8	105.8	106.0	102.6	104.9	102.8	100.6
1928	104.0	108.0	108.7	104.0	105.7	103.5	102.2
1929	104.0	107.7	107.4	104.0	104.6	103.5	101.1

(*a*) See Table I. Rates are for December of each year.
(*b*) See Table XIII. Earnings are for March of the following year.

The wages statistics published by the Ministry of Transport[2] make it possible to compare the relative levels of weekly rates[3] and actual weekly earnings for one week in the year and the relation between the two is given for 1930 as a representative year.

[1]See also J.W.F. Rowe, " Wages in Theory and Practice." Chap. 1.
[2]See p. 90.
[3]The weekly rate is determined as follows : in the case of salaries the weekly salary is calculated on the basis of 6/313ths. of the annual salaried rate, including residential bonus if any. The average wage is based on the standard rate (plus bonus additions, if any, under sliding scale) in operation at the time of the Census, and, in the case of Mechanics and Artisans, is arrived at by adding the war wage to the standard or basic rate.

TABLE IV.

PERCENTAGE WHICH ACTUAL WEEKLY EARNINGS BEAR TO RATES FOR CERTAIN OCCUPATIONS ON RAILWAYS. 1930

Carters, etc.	110.9	Porters: Goods' Staff	107.4
Carriage Cleaners	117.2	Grade 2	107.9
Carriage Examiners	109.8	Shunters	107.8
Checkers	107.3	Signalmen	112.9
Clerks	100	Station Masters	103.0
Engine Cleaners	108.0	Miscellaneous	120.6
Engine Drivers	114.8	Carriage and Wagon Builders	133.4
Firemen	113.8	Erectors, etc.	128.0
Guards	112.5	Labourers: Locomotive	123.7
Loaders, etc.	111.4	Civil Engineering	113.3
Permanent Way Men:		Machinists	135.6
Gangers	104.6	Smiths	126.1
Subgangers	113.5		
Undermen	113.5		

II. The "Bowley" Index

The index of wage movements prepared by Professor A. L. Bowley and published monthly in the London and Cambridge Economic Service merits special attention since it is the only index which is designed to measure, in a scientific manner, the general movements of wages in the United Kingdom, and it is widely quoted in all discussions of such movements. The index has been recently reconstructed and the description following refers to the new index.[1]

Broadly speaking, this index measures changes in rates of wages, although "it is believed that the movements in earnings cannot have differed significantly from the movement of rates, especially as it is possible to rectify for miners' earnings at frequent intervals." The complete list of industries and occupations covered is as follows:

Bricklayers. Average of summer weekly time-rates in London, Southampton, Bristol, Birmingham, Leeds, Manchester, Glasgow, Belfast.

Bricklayers' Labourers. Similarly, excluding Belfast.

Compositors. Average of weekly time-rates, weighted with the numbers in brackets, in London (7), Edinburgh (5), Manchester (5), Birmingham (2), Bristol (2), Cardiff (2), Swansea (2), Sheffield (2), Nottingham (3), York (3), Southport (1), Plymouth (1), Dewsbury (1), Burton-on-Trent (1), Lincoln (1), Weston-super-Mare (1), Cambridge (2).

Docks. Average of half-day's time-rates, London, shipowners' employees, London, others, Bristol, Liverpool, Hull, Glasgow.

Fitters and Engineering Labourers. Time-rates in principal centres as compiled in the *Ministry of Labour Gazette.*

Coal. Changes in piece-rates (in the future these will be modified from time to time in accordance with the statistics of earnings per shift, as these become available) weighted according to the wage-bills in the seven principal divisions in 1914.

Railways. Estimate of the effect of any changes on the total wage-bill.

Cotton. Changes in piece-rates.

Wool. Combination of changes in time and piece-rates.

Agriculture. Average of time-wages of ordinary agricultural labourers in the counties of England and Wales, as communicated by the Board of Agriculture and Fisheries.

Shipbuilding. Changes in piece-rates. (Apart from engineers, already included, the only available time-rates are for shipwrights and joiners, which are not typical for the industry).

Local Authorities, non-trading services. Average of time-rates for labourers in Brighton, Plymouth, Cardiff, Leicester, Derby, Sheffield, Huddersfield, Glasgow and Dundee.

Tram Drivers and Conductors. Average of time-rates in Plymouth, Cardiff, Bradford (Yorks.), Liverpool, Hull and Edinburgh.

[1]London and Cambridge Economic Service Special Memorandum No. 28. "A New Index Number of Wages." A. L. Bowley.

Lorry Drivers, petrol over 2 tons. Average of time-rates in London, Bristol, Manchester, Leeds, Newcastle and Glasgow.
Boot and Shoe Making. Agreed national minimum time-rates for women.
Sugar and Confectionery Industries. Trade Board General minimum time-rates for women.
Ready-made Tailoring. Trade Board General minimum time-rates for women.
Shirt Making. Trade Board General minimum time-rates for women.
Tobacco. Trade Board General minimum time-rates for women.

The changes in each of these twenty groups are expressed as percentages of the levels at the end of 1924 and an average taken with the following weights attached to the different groups.

Bricklayers	11	Lorry Drivers	3
Bricklayers' Labourers	4	Tailoring	2
Compositors	3	Agriculture	4
Dock Labourers	3	Fitters	12
Engineering Labourers	7	Cotton	10
Shipbuilding	4	Wool	5
Railways	11	Local Authorities	4
Boot and Shoes	1	Trams	3
Shirt Making	1	Confectionery	1
Coalmining	10	Tobacco	1
		Total	100

The details of the wage index for March of each year since 1924 are shown in Table V.

TABLE V.

DETAILS OF "BOWLEY" INDEX AT MARCH, 1925–30, AS PERCENTAGES OF LEVELS IN DECEMBER, 1924

	Dec., 1924	March					
		1925	1926	1927	1928	1929	1930
Building:							
Bricklayers	100	100	100	100	97.8	98.1	96.3
Labourers	100	100	100	100	97.4	97.4	94.8
Engineering:							
Fitters	100	100	100	100	103.5	103.5	103.5
Labourers	100	100	100	100	105	105	105
Shipbuilding	100	100	100	100	100	100	100
Railways	100	100	100	100	100	97.5	97.5
Docks	100	100	100	100	100	100	100
Compositors	100	100	100	100	100	100	100
Cotton (*a*)	100	100	100	100	100	100	93.5
Wool (*a*)	100	100	100	100	100	100	100
Local Authorities	100	100.2	100.2	99.8	98.3	98.6	98.6
Trams	100	100.3	100.7	100.7	100.4	98.8	98.8
Lorries	100	100.2	100	100	99.2	98.8	97.6
Coal	100	100	98.1	98.3	87.7	87.2	87.2
Agriculture	100	112.2	112.2	112.2	112.2	112.2	112.2
Boot Making (*b*)	100	100	100	100	94.4	94.4	94.4
Tailoring (*b*)	100	100	107.7	107.7	107.7	107.7	107.7
Shirt Making (*b*)	100	100	107.7	107.7	107.7	107.7	107.7
Confectionery (*b*)	100	100	100	100	100	100	100
Tobacco (*b*)	100	100	100	100	100	100	100
Weighted Average	100	100.8	100.5	100.9	99.8	99.4	98.3

(*a*) Males and Females.
(*b*) Women only.

The composite index is shown in Table VI.

TABLE VI.

INDEX NUMBER OF WAGES IN THE UNITED KINGDOM. 1924–30

(December, 1924=100)

July	
1925	100.5
1926	100.3
1927	100.0
1928	99.8
1929	99.5
1930	98.25

The "Bowley" index necessarily suffers from limitations imposed by the comparative lack of reliable statistics of wage rates in a number of industries, such as Cotton, and by the restriction of the industries included to those in which changes can be ascertained promptly and quickly handled for the purposes of a monthly index. The relative importance of men and women in industry can only be allowed for in a rough fashion and the index relates largely to adult workers. Beyond that, whilst from time to time allowances can be made for such changes as the modification of hours of work or a shift of relative numbers between industries, the index can only be adjusted at infrequent intervals for those changes, such as technical developments, which cause movements of wage rates to diverge from those of earnings.

III. Earnings

1.—*Wage Census of* 1924.

This census, covering manufacturing industry generally and some of the principal non-manufacturing industries in Great Britain and Northern Ireland, was taken in four weeks in January, April, July, and October, 1924. Replies were received from over 127,000 employers, of a total of 300,000 to whom forms were sent, covering over 5,000,000 workpeople. It is important to notice, therefore, that the averages below may possibly differ from the averages for all workpeople employed.[1] The summarised results are shown below. Returns of hours worked were also obtained from employers covering over 3,000,000 workers and hourly earnings computed for each group.

[1]The Ministry of Labour estimated that "if corrections were made for the fact that some industries are represented more completely than others the weekly average of 47/10 would be raised slightly, though probably not by more than 3d. to 6d. per week. If, further, coalmining and the railway services were included, the weekly earnings would average about 50/- per head."

TABLE VII.

AVERAGE WEEKLY AND HOURLY EARNINGS OF ALL WORKPEOPLE IN UNITED KINGDOM INCLUDED IN CENSUS 1924

Industrial Group	Weekly Earnings			Hourly Earnings Total
	Total	Males	Females	
	s. d.	s. d.	s. d.	d.
Pottery, Brick, Glass, Chemicals, etc.	48/5	56/7	24/1	13.0
Metal	51/8	54/9	25/3	13.5
Textile	37/8	51/6	28/9	10.3
Clothing	35/8	54/10	27/5	9.7
Food, Drink and Tobacco ..	46/2	57/1	27/8	12.2
Woodworking	50/6	53/6	26/2	13.5
Paper, Printing	53/4	69/1	27/4	13.9
Building and Allied Industries ..	58/1 (*a*)	58/2 (*a*)	25/9 (*a*)	15.5
Other Industries	48/10	54/0	26/5	12.7
Public Utility Services ..	58/11	59/3	29/4	14.5
Government Industrial Establishments	59/4	59/10	38/3	15.4
All above	47/10	56/3	27/6	12.8

(*a*) It is possible that owing to intermittent engagements some workers may have been included in a particular week in returns from more than one employer. The elimination of this factor, if it were practicable, would tend to increase the average weekly earnings shown and the average hours worked.

It is, unfortunately, not possible to compare the figures of weekly earnings above with figures of wage rates since the earnings statistics refer to all workers, skilled and unskilled.

2.—*Wage Census of* 1928.

The Census taken in 1928 differed in method and scope from that of 1924. The earlier census was taken in four weeks in the year; the latter only in one week. In 1924 127,000 returns covering 5,000,000 workpeople were obtained: the later census was limited to the larger employers, with 100 or more workpeople, who had furnished returns in 1924 and a sample of one-half of the employers having 5–100 workers. In certain industries, however, the sample was larger. In total in 1928, the number of returns received from employers, comparable with 1924, was 40,000 covering about 4,000,000 workpeople. A direct comparison of the results of the two censuses is, therefore, impossible, but the Ministry, by comparing details for the same firms in the same month for the years 1924 and 1928, was able to obtain percentage changes in weekly wages for comparable groups and then to apply these percentages to the 1924 figure, for each industry, in order to obtain a weekly wage figure for 1928. Because of the difference in the nature of the sample in the two years, average weekly earnings for the larger industrial groups were not calculated for the year 1928, but details for separate industries are given below in Table VIII. Since differences in weekly earnings may be attributable to differences in hours worked, 1924 and 1928, this table also gives the number of hours lost through short time in both periods.

TABLE VIII.

AVERAGE WEEKLY EARNINGS IN THE PRINCIPAL INDUSTRIES OF THE UNITED KINGDOM OF ALL WORKPEOPLE INCLUDED IN THE RETURNS AND THE EXTENT OF SHORT TIME WORKING

1924 and 1928

Industry	Average Weekly Earnings				Average number of hours lost through short time per head of all workers at firms who made returns at both dates	
	1924 (week ended Oct. 18th)		1928 (week ended Oct. 27th)			
	Number of Work-people Covered	Average Earn-ings	Number of Work-people Covered (*b*)	Average Earn-ings	Week ended 18th Oct., 1924	Week ended 27thOct., 1928
Brick, Pottery, Glass, Chemical, etc.		s. d.		s. d.		
Brick, Tile	53,636	51/1	35,548	51/2	0.5	1.4
Pottery	57,512	40/4	48,426	39/9	1.9	2.4
Glass	31,571	50/10	27,448	51/5	0.3	0.7
Chemical	61,689	52/8	61,025	54/5	0.2	0.1
Soap, Candle, Oil, Tallow	28,835	50/6	21,868	51/3	1.4	1.2
Metal						
Pig Iron Manufacture	27,209	62/4	17,174	59/1	1.3	1.5
Smelting, Rolling of Iron and Steel	151,104	60/6	113,471	60/1	2.2	1.8
Smelting, Rolling and Casting of Non-ferrous Metals	29,273	57/0	25,922	58/0	0.3	0.6
Sheet Metal Working	46,186	44/2	37,911	44/6	0.8	0.5
Light Castings	21,112	49/5	13,836	52/3	0.6	1.3
Engineering (*a*)	704,643	50/9	637,868	53/2	0.9	0.6
Ship and Boat Building and Repairing	131,036	54/5	105,513	53/10	0.2	0.4
Cutlery, Tool, etc., Manufacture	25,648	43/7	16,623	44/1	1.9	1.9
Gold, Silver, Jewellery, etc.	23,576	43/8	14,249	45/11	0.9	0.6
Textile						
Cotton	443,765	37/7	373,390	37/8	2.4	1.7
Woollen and Worsted	217,510	40/8	169,691	39/5	2.0	3.7
Silk	34,969	39/3	38,371	40/9	1.4	2.7
Linen	69,962	27/7	50,078	24/11	0.7	3.6
Hosiery	74,893	35/0	59,387	37/4	1.0	1.2
Bleaching, Printing, Dyeing and Finishing	88,659	50/3	78,195	49/8	4.0	5.1
Clothing						
Tailoring (ready-made)	82,565	34/4	63,399	34/0	2.6	4.7
Dressmaking	34,143	29/5	14,173	30/11	1.2	0.9
Shirt, Blouse, Underclothing, etc.	47,992	26/10	35,215	28/2	2.4	2.6
Boot and Shoe Making (ready made)	94,027	44/5	71,431	42/4	3.9	6.0
Laundries	72,416	29/8	48,632	29/6	—	—

(*a*) Including marine, agricultural and structural engineering, textile machinery, aircraft and electrical machinery manufacture, motor vehicle and cycle manufacture or repairs, and other or unspecified engineering industries but not including railway shops.

(*b*) i.e., numbers employed by firms who made returns for both 1924 and 1928.

TABLE VIII.—*Continued*

Industry	Average Weekly Earnings				Average number of hours lost through short time per head of all workers at firms who made returns at both dates	
	1924 (week ended Oct. 18th)		1928 (week ended Oct. 27th)			
	Number of Work-people Covered	Average Earn-ings	Number of Work-people Covered (*b*)	Average Earn-ings	Week ended 18th Oct., 1924	Week ended 27thOct., 1928
Food, Drink and Tobacco						
Bread Baking	78,104	49/0	37,225	47/10	0.0	0.1
Cocoa, Chocolate and Sugar Confectionery	64,258	37/4	53,866	37/1	0.4	1.4
Preserved Food, Jam, Sauce..	34,008	35/11	24,246	36/9	0.8	1.1
Brewing, Malting and Bottling	61,362	54/5	43,924	54/0	0.2	0.3
Tobacco	35,660	41/4	32,174	44/6	4.8	2.3
Woodworking and Furniture						
Mill-sawing, Machine Joinery, etc.	68,004	51/5	35,415	50/9	0.3	1.5
Furniture Manufacture ..	66,659	51/5	39,668	53/1	0.2	0.3
Paper, Printing, Bookbinding						
Paper Making	37,071	48/9	35,420	51/10	1.0	0.3
Newspaper Printing, etc. ..	30,896	89/3	30,592	90/8	0.0	0.0
General Printing and Book-binding	124,942	53/0	91,310	53/2	0.2	0.2
Building and Allied Industries	294,916	59/9	157,241	59/8	0.0	0.2
Miscellaneous Industries						
Fell Mongering and Leather Tanning	31,766	52/8	24,092	51/9	1.2	2.6
India Rubber Manufacture ..	35,343	44/7	30,884	45/3	0.9	1.5
Quarrying	49,951	52/8	29,435	52/4	0.3	1.2
Carting and Warehousing ..	76,393	51/9	41,017	52/5	0.3	0.3
Public Utility Services						
Gas Supply	96,068	60/3	84,403	63/3		
Electricity Supply	40,863	64/11	43,427	67/8		
Tramways and Omnibus Services	98,285	69/8	105,236	69/5	Short Time	
Local Authority (Non-trading Services	198,564	51/1	175,211	51/9	Negligible	
Government Industrial Estab-lishments	101,810	61/8	91,296	63/0		

(*b*) i.e., numbers employed by firms who made returns for both 1924 and 1928.

3.—*Coalmining.*

The average earnings per man-shift (including all extra man-shifts) are collected and published by the Department of Mines.[1]

[1]See p. 90.

TABLE IX.

AVERAGE EARNINGS PER MANSHIFT FOR ALL COALMINE WORKERS IN GREAT BRITAIN

	1st Quarter	1924=100	2nd Quarter	3rd Quarter	4th Quarter
	s. d.		s. d.	s. d.	s. d.
1921	19/2	187.4	—	—	12/8
1922	11/0½	107.7	10/2½	9/4	9/5¼
1923	9/7¾	94.3	9/9¾	10/7¼	10/3¼
1924	10/2¾	100.0	10/11¼	10/10¼	10/7
1925	10/7½	103.9	10/6¾	10/4¾ (*a*)	10/5¼ (*a*)
1926	10/4¾ (*a*)	101.6	—	—	—
1927	10/7⅛	103.6	10/2¾	9/9½	9/7½
1928	9/5	92.1	9/3	9/3¼	9/2¾
1929	9/2¾	90.2	9/2½	9/2½	9/2¾
1930	9/3¼	90.6	9/3¼	9/3¾	9/3¾

(*a*) Including subvention.

It is possible to make a fairly exact estimate of the average earnings per hour upon the basis of this material. The earnings above do not include payments in kind but these are relatively unimportant. Thus, since 1927, the Department of Mines has given the average value of these allowances and they amount, roughly, to 4 per cent. of the money earnings. The hours of work per shift have varied since 1921. From 1921 to 1925, following the Royal Commission on the Coal Industry, they were 7½ hours for underground workers and 7¾ hours for surface workers. In 1926 the 8-hour day was restored in many coalfields, though not all, and the International Labour Office adopted 8 hours 19 minutes for underground and 8 hours 4 minutes for surface workers in 1927 and 1929. In its two-yearly enquiry the International Labour Office has accordingly estimated hourly earnings as below.

TABLE X.

AVERAGE HOURLY EARNINGS IN COALMINES

	Underground	Surface
1925	1/6½	1/1
1927	1/4 ..	1/-
1929	1/2½	11d.

4.—*Engineering.*

The Engineering and Allied Employers' National Federation now collects regularly information relating to the earnings of employees in the concerns covered by it. As this information does not usually gain publicity, certain details of the scope of these statistics may be of value. The number of male workers, 21 years and over, covered by the returns has varied from time to time but, since

1924, it has been over 300,000.[1] There has been a very marked change since 1924 in the relation between the number of time and piece workers, the proportion of piece workers increasing from 38 per cent. in February, 1923, to 52 per cent. in March, 1930, for the whole of the workers, and showing even more rapid increases for certain skilled occupations. The workers comprised in the following tables are male employees over 21 years of age and the occupations covered are all those, skilled and unskilled, to be found in the engineering concerns grouped in the Federation. Table XI. shows an index, for the whole of the workers, of average weekly earnings 1923–30.

TABLE XI.

INDEX OF AVERAGE WEEKLY EARNINGS AMONG ENGINEERING EMPLOYEES (MALES OVER 21 YEARS OF AGE) 1923–30 (*a*)

(April, 1924=100)

	Time Workers	Payment by Result Workers	Total
February, 1923	100	97.3	98.2
April, 1924..	100	100	100
March, 1925	103.2	100.8	103.1
March, 1926 ..	102.7	101.0	103.5
March, 1927	104.1	102.7	105.8
March, 1928	108.4	102.0	107.6
March, 1929	109.6	104.4	109.7
March, 1930	109.7	103.2	109.2

(*a*) Earnings taken over a period of four weeks. They include advances, bonuses and payments for overtime and nightshift, but exclude allowances such as outworking, travelling, dirty money, etc. The earnings are in respect of the total number of hours actually worked including overtime and taking into account any short time that may be worked.

Table XII. shows the movement of average hourly earnings for this same group 1926–30.

TABLE XII.

INDEX OF AVERAGE HOURLY EARNINGS AMONG ENGINEERING EMPLOYEES (MALES OVER 21 YEARS OF AGE) (*a*)

(March, 1926=100)

	Time Workers	Payment by Result Workers	Total
March, 1926	100	100	100
March, 1927	100. 6	100.7	101.5
March, 1928 ..	104.5	101.1	103.5
March, 1929	105.2	101.7	104.7
March, 1930 ..	105.1	101.8	104.6

(*a*) See notes to Table XI.

[1]It is not possible to state what proportion this is of the total in the country, but by the 1921 Census the numbers recorded in Engineering were 529,000.

Table XIII. shows the weekly earnings for special classes of workpeople.

TABLE XIII.

INDEX OF AVERAGE WEEKLY EARNINGS IN CERTAIN CLASSES OF ENGINEERING EMPLOYEES (MALES OVER 21 YEARS OF AGE) (*a*)
(March, 1925 = 100)

	March, 1925	March, 1928	March, 1929	March, 1930
Fitters	100	105.8	108.0	107.7
Turners	100	106.0	108.7	107.4
Moulders	100	100.6	102.2	101.1
Patternmakers	100	104.9	105.7	104.6
Labourers	100	104.1	106.2	105.6

(*a*) See notes to Table XI.

5.—*Wool Textile Industry.*

Each month the Ministry of Labour publishes details, for various industries, of numbers employed and total wages paid in one week in the month. Unfortunately, for most industries, the sample of returns sent in by employers is too small to provide a reliable index of weekly earnings and this was true also of the returns relating to the wool textile industry until January, 1926. At that date, however, a much larger proportion of the concerns were persuaded to record employment and wages paid, and the sample has since covered about 60 per cent. of the total employees in the industry.

From this material, chain-index numbers are constructed showing movements in total employment and total weekly earnings. Each month the numbers employed and weekly wages paid are compared, *for the same firms*, with figures for the previous month and the percentages changes from one month to another are built up into a continuous chain. An index of this character suffers from the drawback that it may, over a long period, accumulate biases which would finally throw the index considerably out of the true line. Moreover, it is impossible to compare actual average weekly earnings for widely separated months since different groups of firms may have been included in the two periods. But the size of the sample, and the general constancy of the group of firms which make returns, in this case, lessen the dangers which are usually associated with chain-indices. In the tables below the averages cover all classes of workpeople. In Table XIV. the indices showing the movement of employment and of total weekly wages paid are used to obtain an index of the movements of average weekly wages. This may be compared with the results of Table XV. which show the actual movements of average weekly earnings from year to year although, as stated above, the constitution of the group of firms making returns at the different periods may have varied. It will be noticed, however, that the movements recorded in Table XIV. correspond very closely with those revealed by the method of computation adopted in Table XV.

TABLE XIV.

INDEX NUMBERS OF MONTHLY CHANGES IN NUMBERS EMPLOYED (*a*) AND WEEKLY WAGES PAID IN THE WOOL TEXTILE INDUSTRY, 1926–1931

(January, 1926=100)

January	Woollen Section			Worsted Section			Total (Including Carpet Section)		
	Employment	Total Weekly Wages	Average Weekly Wages	Employment	Total Weekly Wages	Average Weekly Wages	Employment	Total Weekly Wages	Average Weekly Wages
1926	100	100	100	100	100	100	100	100	100
1927	99.8	103.3	103.5	98.8	96.3	97.5	98.9	98.1	99.2
1928	99.4	103.4	104.0	100.9	102.7	101.8	100.3	103.2	102.9
1929	97.5	99.0	101.5	96.0	94.3	98.2	97.1	96.8	99.7
1930	95.3	95.9	100.6	92.4	88.4	95.7	94.3	92.5	98.1
1931	84.9	76.7	90.3	85.1	72.8	85.5	85.7	74.9	87.4

(*a*) The index of employment has one serious limitation. In the Wool Textile Industry a contraction in the demand for labour is often met, not by reducing the numbers employed but by under employment of which the principal form is that of employing the worker on less than a normal complement of machines. To this extent the figures of "Average Weekly Wages" may be affected by changes in the volume of real employment not recorded above.

TABLE XV.

AVERAGE WEEKLY EARNINGS OF ALL CLASSES OF WORKPEOPLE IN THE WOOL TEXTILE INDUSTRY, 1926–1931

January	Woollen Section	Worsted Section	Total (Including Carpet Section)	
			Actual	1926=100
	s. d.	s. d.	s. d.	
Feb., 1926	39/8	38/7	38/10	100
1927	40/9	37/9	38/10	100
1928	41/0	39/8	40/1	103.2
1929	39/5	38/1	38/5	98.9
1930	39/0	36/10	37/8	97.0
1931	35/2	33/6	33/10	87.1

6.—*Railways.*

The Ministry of Transport supplies, for one week in each year, the details of weekly earnings for each of a large number of grades employed on railways together with the numbers in each grade. The information, however, refers only to certain selected grades of workers and comprises details only for adult employees. In Table XVI. average weekly payments are shown for the most important of these grades 1921–30. The earnings figures represent salaries or wages, residual bonus (if any), war wage, piece-work payments, tonnage bonus, payments for overtime, Sunday duty, night duty, commuted allowance and any other payments for work performed, but exclude compensation allowance, travelling and out-of-pocket expenses, and meal and lodging allowances.

TABLE XVI.

AVERAGE WEEKLY EARNINGS OF SELECTED GRADES OF ADULT MALE WORKERS IN RAILWAYS

Class in Census	Department Grade, etc.	Week Ended: 19th Mar. 1921	24th Mar. 1923	29th Mar. 1924	28th Mar. 1925	27th Mar. 1926	30th April 1927	10th Mar. 1928	9th Mar. 1929	8th Mar. 1930
		Salaried and Wages Grades.								
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carters & Van Men	Goods & Cartage Staff: Carters	79 2	58 1	58 3	58 11	58 8	58 5	57 2	56 2	56 2
Carriage Cleaners	Carriage & Wagon Depart.	78 8	54 8	56 3	57 9	57 2	56 4	54 5	53 0	54 0
Carriage & Wagon Examiners	Carriage & Wagon Depart.	88 9	64 5	63 10	65 2	63 2	62 7	62 10	63 6	62 5
Checkers	Goods Staff	79 11	59 11	59 5	59 6	59 1	58 10	59 3	58 7	58 7
Clerical Staff	Various Depart.	102 6	83 6	84 10	84 3	84 3	84 0	85 2	83 3	83 9
Engine Cleaners	Locomotive Dept	70 0	52 10	53 2	52 11	53 3	53 4	52 4	51 2	51 6
Engine Drivers & Motormen	Locomotive Dept (All classes).	115 7	101 7	106 0	102 7	103 10	103 5	102 7	104 10	101 0
Firemen & Assistant Motormen	Locomotive Dept (All classes).	85 10	75 10	78 6	76 5	77 9	78 2	77 10	80 4	77 9
Guards (Goods & Passenger)	Traffic Dept	88 0	72 6	75 6	73 4	74 6	74 1	73 5	76 4	73 0
Loaders & Sheeters	Goods Staff	77 7	58 1	57 11	58 2	57 6	57 10	56 11	55 11	56 4
Permanent Way Men	Permanent Way Dept: Gangers	88 0	63 7	61 8	63 7	62 2	61 6	60 8	58 0	59 3
	Sub-Gangers	80 5	57 11	57 0	59 5	57 10	57 8	57 1	54 9	56 8
	Undermen	79 3	56 7	56 5	58 11	57 2	56 10	55 11	52 7	54 7
Porters (Goods & Passenger)	Goods Staff	74 0	53 4	53 10	54 4	53 9	53 3	51 11	51 2	51 1
	Traffic Dept. Grade 2	73 7	52 0	50 9	51 10	50 8	50 3	48 0	46 11	46 7
Shunters (Goods & Passenger)	Traffic Dept. Class I.	90 9	74 5	74 7	72 5	72 0	71 6	71 4	72 3	70 1
Signalmen	Traffic Dept.	90 2	68 4	68 4	68 1	68 4	69 3	68 0	68 2	66 11
Station Masters, Yard Masters, etc.	Various Classes	129 6	112 10	112 2	113 0	112 0	112 6	114 0	110 4	110 11
Miscellaneous	Coalmen, Firedroppers, Firelighters, Gland Packers	88 9	65 4	65 1	65 0	64 6	64 2	61 8	61 11	61 1
		Mechanics and Artisans.								
Carriage & Wagon Builders & Repairers	Locomotive, Carriage & Wagon	97 8	74 3	77 6	79 9	80 11	79 3	80 9	78 10	79 7
Erectors, Fitters & Turners	Locomotive, Carriage & Wagon	100 5	77 1	79 1	80 5	81 2	79 8	81 7	80 10	81 1
Labourers	Locomotive, Carriage & Wagon	78 11	54 3	56 7	57 6	56 6	57 7	57 9	56 7	57 0
	Civil Engineering	75 0	49 8	51 3	52 6	53 7	53 0	54 6	51 3	52 5
Machinists & Machinemen	Locomotive, Carriage & Wagon	93 0	69 0	73 0	75 3	75 2	73 3	73 5	73 6	75 3
Smiths	Locomotive, Carriage & Wagon	103 7	77 4	82 0	81 6	80 8	80 9	81 6	80 6	81 3

7.—*Heavy Iron and Steel Industry.*

The National Federation of Iron and Steel Manufacturers has collected regularly, since 1921, statistics of weekly earnings of employees at blast furnaces, coke ovens, steel furnaces and rolling mills. The details are obtained for one week in each year and in respect of about 120,000 employees of those who are members of the Federation. The proportion of the total employees of this type in the country covered by the enquiry ranges around 90 per cent.

TABLE XVII.

WEEKLY EARNINGS OF EMPLOYEES AT BLAST FURNACES, STEEL FURNACES, ROLLING MILLS, ETC. (EXCLUDING WROUGHT IRON, TINPLATE, AND GALVANISED SHEET WORKERS), 1921–1929

	Blast Furnaces and Coke Ovens	Steel Furnaces Rolling Mills, etc.	Total	
			Actual	1924=100
	s. d.	s. d.	s. d.	
March, 1921	114/4	92/3	96/8	150.7
June, 1922	61/11	57/4	58/1	90.5
June, 1923	63/0	61/7	61/10	96.4
April, 1924	65/5	63/11	64/2	100
April, 1926	62/3	60/9	61/0	95.1
April, 1927	65/0	63/8	63/11	99.6
April, 1928	60/10	60/5	60/5	94.2
April, 1929			62/2	96.9

COST OF LIVING STATISTICS[1]

THE only cost of living index in the United Kingdom is prepared and published by the Ministry of Labour. In Table I. below the details are given for the years 1921–30.

TABLE I.

COST OF LIVING INDEX FOR THE UNITED KINGDOM
(July, 1924=100)

July	Food	Rent (*b*)	Clothing	Fuel and Light	Sundries	Total
1921	.. 136	99	129	141	117	129
1922	111	104	107	103	108	108
1923 (*a*) ..	100	100	98	97–100	103	99
1924	100	100	100	100	100	100
1925	103	100	102	97	100	102
1926	99	102	98	105	100	100
1927	98	103	93–96	92	100	98
1928	97	103	98	89	100	97
1929	92	104	96–98	89–92	100	95
1930	87	104	93–96	92	97	91

(*a*) For period after January, 1923 figures are exclusive of prices in the Irish Free State.
(*b*) For years 1921–27, figures relate to controlled rents only; 1928–30 controlled and decontrolled rents combined.

[1]This section has largely been drawn from "The Cost of Living Index Number." Ministry of Labour, 1931.

The method of calculation of this index is as follows :—

Food

The foodstuffs included in this index are beef, mutton, bacon, fish, flour, bread, potatoes, tea, sugar, milk, butter, margarine, cheese and eggs. Fruit and vegetables are excluded on the grounds that variations in quality and price make it impossible to obtain continuous and comparable records. Information, as to the predominant retail prices of these foods, is collected at the beginning of each month by the managers of Employment Exchanges and Branches,[1] from representative retailers (including co-operative societies, large multiple firms and private shopkeepers) conducting a working-class trade. Information is obtained in all towns with a population exceeding 50,000[2] at the Census of 1911, and a representative selection of 420 smaller towns throughout the United Kingdom. Altogether 509 towns and villages are reported upon. Over 5,000 retailers supply price information concerning food.

An unweighted average price for each article is obtained for the larger towns as a group and for the smaller towns as a group. The average price then obtained for each group of towns is calculated as a percentage of the price in July, 1914. The percentage increase, for each article, for the United Kingdom is then determined by taking the arithmetic mean between the percentage for the larger towns and that for the smaller. The weights employed in calculating the final food index are based on the average expenditure shown by 1,944 urban working-class family budgets collected by the Board of Trade in 1904. The adoption of " weights " based on the expenditure of 1904 is not invalidated by changes in quantities between 1904 and 1914, because the changes in quantity (which were generally slight) were largely counterbalanced by changes in price-level, with the result that the proportion of income spent on the different commodities could not have been sensibly altered[3] except as regards margarine, for which a special allowance is made.

The following table illustrates the arithmetical process by which the general average for food is computed from the percentage increases for the several items. The percentages given are those obtained from the returns for 1st January, 1931.

[1]As regards tea, application is made to retailers direct from the Dept. through the post.

[2]Separate returns are obtained for different districts in the Metropolitan area, and by this means London is given its appropriate weight in the statistics.

[3]The validity of using the budgets of 1904 was confirmed by the " Sumner " Cost of Living Committee of 1918, who reported that it was fairly certain that " between 1904 and 1914..... no considerable changes took place in the mode or standard of living."

(1) Article	(2) Average expenditure on these articles in Budgets of 1904	(3) "Weights" proportional to such expenditure	(4) Percentage increase at 1st January, 1931	(5) Result of multiplying (3) by (4)
	s. d.			
Beef	2/ 5½	48	39	1,872
Mutton	1/ 2¾	24	51	1,224
Bacon	–/11½	19	17	323
Fish	–/ 5½	9	112	1,008
Flour	1/ 0¼	20	21	420
Bread	2/ 6¾	50	29	1,450
Tea	1/ 1½	22	28	616
Sugar	/11¾	19	21	399
Milk	1/ 3¼	25	84	2,100
Butter	2/ 1½	41	16	656
Cheese	–/ 6½	10	38	380
Margarine	—	10	3	30
Eggs	1/ 0	19	96	1,824
Potatoes	/11	18	28	504
	16/ 7¾ (*a*)	334	—	12,806
"Weighted" Average increase = 12,806/334 = 38 per cent.				

(*a*) Excluding margarine, for which a "weight" of "10" (see the third Column in the above Table) was used, derived from statistics of production and imports. The total expenditure shown relates, of course, only to the articles specified. For all items of food, the average expenditure in the 1904 budgets was 22s. 6d.

Rent

Collection of Information : The information relates to the rents, inclusive of local rates and water charges, of unfurnished dwellings of the types usually occupied by working-class families. From July, 1920, to July, 1923, increases in rents of such dwellings (except of new dwellings) were limited by the provisions of the Increase of Rent and Mortgage Interest (Restrictions) Act, 1920; and the Rent and Mortgage Interest Restrictions Act, 1923, in the main continues the provisions of the Act of 1920 as regards rent, with the exception that rents of dwellings becoming vacant are, except in certain circumstances, removed from the control of the Act. Until 1928 the proportion of de-controlled rents was not large enough to affect substantially the average results for working-class dwellings as a whole and the statistics of changes in rents were based on controlled rents only. Since that date, de-controlled rents have also been taken into account.[1]

The information collected accordingly falls under two headings, viz., that relating to controlled and that relating to de-controlled rents.

In respect of controlled rents, enquiries have been made, usually through the post at half-yearly intervals corresponding with the rating periods, of Town Clerks and other officials of local authorities and of Property Owners' Associations.

[1]Thus in December, 1928 the effect of including de-controlled rents was to raise the average percentage increase from 50 to 52; whilst in February, 1931 the result was to increase the figure of controlled rents from 49 to 54.

The particulars which have been obtained relate to 39 large towns and indicate the amounts of increase regarded as being permissible for variously rented working-class properties, and the extent to which the increases have been applied.

In respect of de-controlled rents, information has been collected from Town Clerks and other officials of local authorities, from Property Owners' Associations and from house-agents in 29 large towns as to (*a*) the proportions of working-class tenancies which have been de-controlled, and (*b*) the increases in rents of such dwellings since they ceased to be controlled.

Compilation of Statistics ; In respect of controlled rents, the information as to the amounts of increase regarded as being permissible in the various towns is tabulated separately for each of various amounts of pre-war rents (e.g., of 4s., 5s., 6s., 7s., inclusive of rates and water charges, for most of the towns for which information is received). From the amounts so tabulated average amounts of increase are computed, regard being had to the varying populations of the different towns, and from these averages the average percentage increases for each of the respective pre-war rents are calculated. These increases are then combined into a single figure representing the average percentage increase regarded as being permissible. This average increase is then adjusted on the basis of information given on the returns received, in order to make the necessary allowance for cases in which the increases regarded as permissible have not been imposed to their full extent.

In respect of de-controlled rents, the particulars obtained from different sources are summarised in order to arrive at (*a*) the ratio between the numbers of tenancies at de-controlled and at controlled rents, and (*b*) the relationship of de-controlled rents to pre-war rents ; and the summarised figures are then combined into general averages under each heading (*a*) and (*b*), regard being had to the varying populations of the different towns from which the information is received.

By combination of the average percentage increases since 1914 thus calculated for controlled and de-controlled rents respectively, in accordance with their relative proportions, a final figure is obtained, representing the average percentage increase since 1914 in the level of controlled and de-controlled rents combined.

Clothing

Collection of Information ; In order to estimate the increase in prices of clothing information is obtained as to the movement of retail prices of men's suits and overcoats (ready-made and bespoke), woollen and cotton materials, underclothing and hosiery,[1] and boots. The statistics relate to those descriptions of articles which were most generally purchased by the working classes before the war, i.e., to relatively low-priced grades.

Enquiry forms, distributed and collected through the post, are completed, each month by 300 representative outfitters, drapers, and boot retailers in

[1]Viz. Costume cloth, tweed, serge, frieze, cashmere, flannel, flannelette, calico, cotton shirting, print, zephyr, sateen, drill, galatea, woollen vests (men's and women's), woollen pants, men's merino socks and cotton socks, women's woollen stockings and cotton stockings.

81 towns. Some of these retailers have large numbers of branches. The descriptions of articles for which quotations are given vary with different retailers, but before the form is despatched to a retailer the prices quoted by him at the previous enquiry are entered on it, and he is asked to quote the current prices for the same articles and qualities as before, or for the most nearly corresponding articles and qualities.

Compilation of Statistics : For other commodities, e.g., foodstuffs, the predominant prices are averaged and this average forms the basis of the final figures. For articles of clothing, however, the range of prices and qualities is so wide that this method is unsuitable. The method adopted is therefore to compute separately the percentage change during the month shown by each quotation, to average these percentages for each article, and thence to calculate the average percentage increase since July, 1914, by linking-up these figures with those obtained for earlier dates. The resultant average changes for the several articles are then collected into six groups, as follows :— (1) men's suits and overcoats, (2) woollen material for women's outer garments, (3) woollen underclothing and hosiery, (4) cotton material for women's outer garments, (5) cotton underclothing material and hosiery, (6) boots. The percentage change for each such group is then arrived at by taking the average of the percentage changes for the constituent articles, allowance being made in group (1) for the difference in the relative importance of ready-made and bespoke clothing and of suits and overcoats.

It will be observed that some of the information collected relates to the prices of materials for clothing, instead of some of the articles of clothing themselves, partly because comparative prices of materials can be obtained over a long period with a greater measure of accuracy and partly because many families buy materials and either arrange for making-up or make them up at home. Information as to the charges for making-up has been obtained by special enquiry of dressmakers with a working-class custom, and in utilising the prices of materials to obtain an estimate of the amount of the increase in the price of garments, for combination with the increases for finished articles in order to obtain the general percentage increase in the prices of clothing generally, allowance is made for the fact that the charges for making-up have not changed similarly, the percentage increases shown by the materials in groups (2) and (4) being combined with that relating to the charges for making-up materials by giving in each case a " weight " of 3 for the material to 1 for the cost of making-up. In arriving at these " weights " of 3 and 1, allowance has been made for the fact that in some cases the garments are made up at home ; where this is done the increase in the cost of the materials, of course, closely represents the increase in the cost of the garment.

The final percentage representing the general increase in the retail prices of clothing is computed by averaging the figures for the six groups—those for groups (2) and (4) being first modified on account of the cost of making-up materials—the relatively greater importance of group (1) and the smaller importance of group (4) being recognised by giving a " weight " of $1\frac{1}{2}$ to group (1)

and a " weight " of ½ to group (4), compared with a " weight " of 1 for each of the other four groups.

It will be recognised that owing to the wide range of quotations, both now and before the war, to changes in qualities and in stocks held by retailers, and to variations in the extent to which different articles and qualities have been affected by price-changes, it is not possible to make exact calculations of the average percentage changes in prices of clothing. The percentages arrived at by the method of averaging described above should, therefore, be regarded only as approximate indications, which may be taken to be broadly representative of the general course of prices of the cheaper classes of clothing.

Fuel and Light

Collection of Information : The items included in this group are coal, gas, oil, candles and matches. Statements as to the retail prices of coal are obtained each month, through the post, from coal merchants and local correspondents in 29 of the principal towns ; and statements as to the prices of gas are obtained, quarterly or monthly, from gas undertakings and local correspondents in 24 of the principal towns. Returns as to the prices of lamp oil are obtained each month, through the post, from 84 retailers in 49 towns, and returns as to the prices of candles and matches are obtained each month from over 300 retailers in 91 towns. When an enquiry is despatched, except as to gas, for which the precaution is unnecessary, the prices returned at the previous enquiry are always supplied, so as to ensure that the quotations shall be comparable.

Compilation of Statistics : The prices quoted are tabulated and average prices are then arrived at by totalling the quotations and dividing by the number of entries. A computation is then made of the percentage increase shown by the current average price of each article over the corresponding average price of July, 1914. The percentage increases so ascertained are combined into a general average for fuel and light by weighting them in accordance with their approximate relative importance in pre-war working-class family expenditure, the proportions taken being 6 for coal, 3 for gas, and 0.7 for oil, candles and matches together.

Other Items

Collection of Information : The items included in the statistics under this heading are soap, soda ; domestic ironmongery, brushware and pottery[1] ; tobacco and cigarettes ; fares ; and newspapers. Of these the prices of soap and soda are ascertained each month, through the post, from over 300 retailers in 91 towns. Prices of ironmongery, brushware and pottery are ascertained from 65 retailers in 40 towns. For tobacco and cigarettes quotations are taken from manufacturers' retail price lists. Particulars of changes in railway fares are obtained from the railway companies and from the Ministry of Transport, and particulars of changes in tramway fares are obtained from the principal tramways undertakings. The

[1]Including saucepans, kettles, frypans, bowls, pails, scrubbing brushes, banister brushes, brooms, cups and saucers, plates, basins, dishes, jugs and tea-pots.

prices of 87 daily and weekly newspapers circulating largely among the working classes are taken from the press.

Compilation of Statistics : For soap, soda, and tobacco the quotations are tabulated and added, the totals so obtained are divided by the number of quotations, and the resultant averages are compared with pre-war averages similarly obtained in order to arrive at the average increase. For ironmongery, brushes and pottery, for which the actual prices vary considerably according to the description of article, the method adopted is similar to that followed in dealing with clothing prices, referred to above, the percentage change shown by each quotation being computed and all the percentages for each article being then added and averaged. A similar method is adopted for newspapers. For railway fares the average percentage increase is calculated from various particulars supplied by the railway companies and the Ministry of Transport, ordinary third-class fares (single and return) and workmen's fares being taken into account. For tramway fares (workmen's and ordinary) comparison has been made of the cost, in 1914 and at the current date, of travelling various distances, account being taken of the number of passengers travelling such distances, as indicated by the number of tickets issued at each rate of fare.

The increases so ascertained for each of the items in this group are then combined, after consideration of the relative importance of the different items, so as to enable the Department to form an estimate of the average increase in prices of these items, taken as a whole, and its effect on the general percentage increase for all items. There is considerable variation both in the total amount of expenditure and in the distribution of the amount among the several items, but the absence of an exact statistical basis for " weighting " does not impair the value of results, as there is no scope for any serious error resulting from the " weights " used, the expenditure on the items in this group being, on the average, small relatively to the total family expenditure.

Weighting : In order to arrive at the final index the following weights are attached to the percentage increases in each main group : food, $7\frac{1}{2}$; rent (including rates), 2 ; clothing, $1\frac{1}{2}$; fuel and light, 1 ; other items, $\frac{1}{2}$.

In determining the weight to be attached to food the results of a Board of Trade Enquiry[1] in 1904 into the budgets of 1,944 urban working-class families are made use of. The budgets covered families with a fairly wide range of income.

Limits of Weekly Incomes	25s.	25s.–30s.	30s.–35s.	35s.–40s.	40s.–	All Incomes
Number of Returns ..	261	289	416	382	596	1944
Average Weekly Family Income..	21s. 4½d.	26s. 11¾d.	31s. 11¼d.	36s. 6½d.	52s. 0½d.	36s. 10d.
Average Number of Children Living at home	3.1	3.3	3.2	3.4	4.4	3.6

[1]Cmd. 3864.

They showed that, on the average, 22s. 6d. out of a family income of 36s. 10d. per week was spent on food, or about three-fifths of the total. Between 1904 and 1914 there were almost equal increases, on the average, in prices and wages, and although the cost of food rose less, on average, than that of other commodities, it is unlikely that expenditure on food before the war in 1914 would have varied materially from three-fifths of the total expenditure on all the items included in these statistics. The total " weight " allotted to food is, therefore, three-fifths of the total of $12\frac{1}{2}$, i.e., $7\frac{1}{2}$.

The weights attached to the other groups are, in some cases, in the nature of estimates.

Information as to rents, which was obtained in the course of an enquiry into the Cost of Living in 1912, showed that the average working-class rent in the industrial towns was about 5s. 6d. to 6s. per week. In 1914 it was a little higher—probably about 6s. per week.[1] That is to say, the proportion which rent formed of the total weekly family expenditure on the items included in these statistics amounted to between one-sixth and one-seventh, and the " weight " taken for rent is accordingly 2, out of the total of $12\frac{1}{2}$.

As regards clothing, there are wide variations in the expenditure of different sections of the working classes, but pre-war investigations showed that, on the average, expenditure on clothing before the war was less than that on rent, in many cases much less. In the absence of exact statistics a " weight " of $1\frac{1}{2}$ (out of a total of $12\frac{1}{2}$) is taken for clothing, on the basis of pre-war expenditure by working-class families estimated to average 4s. 6d. to 5s. week.

For fuel and light also there are no extensive statistical data as to expenditure before the war, but the available information indicates that the average expenditure was probably about 2s. 9d. to 3s. a week, which yields a " weight " of 1 (out of a total of $12\frac{1}{2}$). The " weight " of $\frac{1}{2}$ for the other items included was taken as fairly representing average expenditure on these particular items.

Base : July, 1914, but in the table above this has been moved to July, 1924.

Frequency of Compilation : Monthly.

[1] In some towns, notably London, the rents paid were considerably higher than the amounts stated, whilst in others they were considerably lower.

THE UNITED STATES

WAGE STATISTICS

THE section which follows dealing with wages in the United States takes a rather different form from the corresponding sections for other countries. At the Conference in May, 1930, the representatives of the United States presented a report, prepared by Dr. L. Wolman, in which an index of hourly earnings was constructed for the employees in the four major industrial groups—manufacturing industry, coalmining, steam railways and building—in the hope that some comparable index might be constructed for each of the other countries represented. It has been pointed out elsewhere that, at the moment, the material in existence does not make this possible. In view of the fact, however, that this index for the United States might well form a standard around which the enlargement of statistics of earnings in other countries could be made, with the purpose ultimately of comparing internationally movements in hourly earnings, it was considered desirable to embody Dr. Wolman's report rather than to give a representative group of wage statistics as has been done for other countries. Moreover, a great deal of research has been carried through recently upon the question of wage movements in the United States[1] and the method of presentation adopted for other countries would, in this case, have led to a good deal of overlapping and repetition. A full account of the different sources and nature of the wage material in the United States is given elsewhere.[2]

In the American series of wage statistics, there are no comprehensive statistics of either wage rates or of changes in wage rates. For piece-work industries such data of this character as there are cover only a few workers and are even for them not reliable. Only in the building trades, which are almost completely on time-work, is it possible to obtain adequate and continuous series of time wage rates. The following tables of wages in the United States, therefore, represent hourly earnings in the piece-work occupations, and hourly wage rates, actually paid, in the time-work occupations.

While the figures for steam railroads and building trades are ascribed to the National Industrial Conference Board, this agency draws the raw data from other sources indicated in the tables and we have made independent examinations of the data and have verified the figures published by the Board. The figures for the manufacturing industries as collected directly by the National Industrial Conference Board, include a representative sample of manufacturing industries,[3]

[1]See in particular *Real Wages in the United States*, 1890–1926, P. H. Douglas. *The Movement of Money and Real Earnings in the United States*, 1926–28, P. H. Douglas and F. T. Jennison. *The Earnings of Factory Workers*, P. T. Brissenden.

[2]See p. 91.

[3]The industries covered are: Iron and Steel Manufacturing; Agricultural Implement Manufacturing; Automobile Manufacturing; Electrical Apparatus Manufacturing; Foundry and Machine Shop Products comprising Foundries, Machines and Machine Tools, Heavy Equipment and Hardware and Small Parts; Cotton Manufacturing—North; Cotton Manufacturing—South; Hosiery and Knit Goods Manufacturing; Silk Manufacturing; Wool Manufacturing; Boot and Shoe Manufacturing; Leather Tanning and Finishing Chemical Manufacturing; Paint and Varnish Manufacturing; Paper and Wood Pulp Manufacturing; Paper Products Manufacturing; Printing and Publishing—Book and Job; Printing and Publishing—Newspaper and Periodical; Furniture Manufacturing; Lumber Manufacturing and Millwork; Meat Packing; Rubber Manufacturing.

and show the same movement as series collected independently and by different methods by the U.S. Bureau of Labor Statistics. No monthly mining figures are available; nor is it possible at this time to obtain average hourly earnings in the coalmining industry for the years 1920, 1921, 1923, 1927 and 1928. For the construction of the combined index of wages in the United States, the data for coal miners' wages in these years are obtained by simple interpolation. No significant error results from the use of this method, since coalmining carries only a small weight in the total. The weights used represent the numbers employed in the specified industries in 1925; no radical changes in the distribution in the numbers employed in these industries have taken place since that year.

TABLE I.

WEIGHTED AVERAGE HOURLY WAGES AND INDEX OF ALL WAGE EARNERS COMBINED(*a*)

1921–1930

Year	Average Hourly Wages	Index of Average Hourly Wages (1924=100)
	$	
1921	.608	93.8
1922	.582	89.8
1923	.624	96.2
1924	.648	100.0
1925	.652	100.6
1926	.660	101.8
1927	.669	103.3
1928	.669	103.3
1929	.682	105.2
1930	.697	107.5

(*a*) Data given in this table are weighted annual averages for manufacturing industries, building trades, Class I. Steam Roads and bituminous coal mining. The data are all based on hourly *earnings* with the exception of building trades for which hourly *rates* were given. The weights used in combining the wages are:

Manufacturing Industries	= 65
Class I. Steam Roads	= 15
Building Trades	= 15
Bituminous Coal	= 5

TABLE II.

NUMBER EMPLOYED AND WEIGHTS USED IN COMBINING HOURLY WAGES OF INDUSTRIAL GROUPS

Industrial Group	Average Number Employed 1925	Estimated Number Employed	Weights used
Manufacturing Industries	8,384,261(*a*)	8,450,000	65
Class I. Steam Roads	1,766,915(*b*)	1,950,000	15
Bituminous Coalmining	588,493(*c*)	650,000	5
Building Trades	1,682,000(*d*)	1,950,000	15
TOTAL	12,421,669	13,000,000	100

(*a*) From U.S. Census of Manufactures, 1925, p. 26.
(*b*) From Interstate Commerce Commission, 39*th Annual Report on the Statistics of Railways in the United States*, 1925, p. XXVII. This figure includes, also, employees in a supervisory or executive capacity, clerks, gang foremen, and a group of building trades' workers, which were excluded from hourly wages published by the National Industrial Conference Board.
(*c*) From U.S. Geological Survey, *Coal in* 1927, p. 365.
(*d*) Estimated by dividing the value of total construction in the United States, exclusive of roads and bridges, by estimated average value of output per man in construction work. (See Leo Wolman: *Planning and Control of Public Works*, Chapter V.).

TABLE III.

AVERAGE HOURLY EARNINGS IN 25 MANUFACTURING INDUSTRIES ALL WAGE EARNERS COMBINED

1920–1930

Monthly Average(*a*)	$	1924=100
1920	.606(*b*)	108.2
1921	.520	92.9
1922	.492(*c*)	87.9
1923	.540	96.4
1924	.560	100.0
1925	.559	99.8
1926	.562	100.4
1927	.569	101.6
1928	.570	101.8
1929	.580	103.6
1930	.593	105.9

Source: National Industrial Conference Board. *Wages in the United States.*
(*a*) Arithmetic average of data given for each year.
(*b*) Data cover 7 months, June to December.
(*c*) Data cover 6 months, July to December.

TABLE IV.

AVERAGE HOURLY EARNINGS OF ALL WAGE EARNERS IN CLASS I. STEAM ROADS IN THE UNITED STATES(*a*)

1921–30

Monthly Average(*b*)	$	1924=100
1921(*c*)	.596	100.3
1922	.588	99.0
1923	.586	98.7
1924	.594	100.0
1925	.607	102.2
1926	.603	101.5
1927	.614	103.4
1928	.623	104.9
1929	.640	107.7
1930	.646	108.8

Source: National Industrial Conference Board's computations based on the Interstate Commerce Commission's monthly report of *Wage Statistics of Class I Steam Roads in the United States.*

(*a*) For occupations included and method of computation, see attached notes.
(*b*) Simple unweighted arithmetic average of twelve months.
(*c*) Average of last six months.

NOTES TO TABLE IV.

Classification

The National Industrial Conference Board Classification of all wage earners on Class I. Steam Roads covers 94 of the 148 occupations listed by the Interstate Commerce Commission's monthly report of wages on Class I. Steam Roads. They include the following:

Occupations	I.C.C. Classification Number
Unskilled; mostly maintenance of way men and laborers.	32, 46, 47, 51, 52, 53, 84, 85, 86.
Skilled Shop Crafts.	45, 57, 58, 59, 60, 68, 69, 70, 72, 78, 79.
Dispatchers, Station Agents and Operators.	90 through 97.
Train and Engine Service.	131 through 148.
Switch Tenders and Hostlers.	127 through 130.
Miscellaneous Occupations.	19 through 23, 30, 31, 33, 71, 73, 80, 81, 82, 87, 88, 89, 100, 101, 104 through 125.

The Classification excludes all employees in a supervisory or executive capacity, all clerks, gang foremen and a group of building trades' workers (39 through 44).

Method of Computation

Average hourly earnings are computed by dividing total compensation by total time paid for; in the five cases (19, 21, 91, 120 and 124) where the time unit used is a day, the days paid

for are multiplied by eight to reduce them to an hourly basis. For train and engine service employees (131–148) the figure for total hours used is the sum of straight time paid for; overtime paid for and constructive allowances.

Error

From January, 1926, on there is an error in the figures which makes the hourly earnings approximately $.007 lower every month than the corrected figures would be. This was caused by a change in the "total service hours" reported for the road freight employees, classifications 133, 134, 137, 138, 142, 143, 146 and 147. Previous to January, 1926, the column headed "total service hours" had been the sum of "straight time actually worked," "overtime paid for" and "constructive allowances." From January, 1926, on the "total" column was the sum of "straight time *paid for*" "overtime paid for" and "constructive allowances." The National Industrial Conference Board continued taking the "total" figure without correcting for the different classifications included. We have not used the corrected figures because we had only copied the National Industrial Conference Board's work sheets through July, 1928, and therefore could not correct their figures for the period after that.

TABLE V.

WEIGHTED AVERAGE WAGE RATES PER HOUR OF 17 BUILDING TRADES IN 23 CITIES(*a*)

1920–30

Monthly Average(*b*)	$	1924=100
1920	1.001	95.6
1921	.943	90.1
1922	.891	85.1
1923	.971	92.7
1924	1.047	100.0
1925	1.074	102.6
1926	1.122	107.2
1927	1.151	109.9
1928	1.151	109.9
1929	1.185	113.2
1930(*c*)	1.238	118.2

Source: National Industrial Conference Board, *Wages in the United States*, 1927 (p. 69) and 1928 (p. 33); their computations based on rates published monthly by *The American Contractor*.

(*a*) Trades covered: Bricklayers, Carpenters, Cement Masons, Electricians, Hod Carriers, Hoisting Engineers, Laborers, Marble Setters, Painters, Plasterers, Plasterers' Helpers, Plumbers, Sheet Metal Workers, Steam Fitters' Helpers, Stone Masons, Structural Ironworkers, and Tile Setters. Cities covered: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Grand Rapids, Indianapolis, Los Angeles, Louisville, Memphis, Milwaukee, New York, Omaha, Philadelphia, Pittsburgh, Richmond, Rochester, St. Louis, San Francisco, and Washington D.C. "For each trade the rates prevailing in each locality have been assigned a weight proportional to the employment of the craft in the particular city and an average rate for the particular craft has been thus computed. In compiling the composite rate for the building industry as a whole, the average rate of each of these 17 trades was again weighted by the relative employment in the total number of cities. (*Wages*, 1927, p. 65). Weights for each trade and each city taken from U.S. Census of Occupations. (*Wages in U.S.* 1928, p. 28).

The American Contractor, from which these rates are taken, drops wage data for two occupations, Hod Carriers and Steam Fitters' Helpers, in May, 1926. Since that date, the National Industrial Conference Board has interpolated figures for these two occupations. In an interview with Mr. Frankel of their staff, he said that this was done by assuming that there had been no change in the rates in this period.

Four cities are included in the series of the National Industrial Conference Board for which rates are not given by *The American Contractor* in the first report—that of August, 1920. These cities are Los Angeles and Richmond, for which data are given beginning with September, 1920, Rochester, for which data are given beginning with December, 1920, and San Francisco, which starts in October, 1920. No explanation was available as to the method of interpolation used for these cities in the first months covered by the series.

(*b*) Arithmetic average of data given for each year.

(*c*) Weighted averages of only 15 trades; Marble Setters ($1.500 in 1929) and Steam Fitters' Helpers ($2.803 in 1929) omitted in 1930.

TABLE VI.

AVERAGE HOURLY EARNINGS IN BITUMINOUS COALMINES

1919–1930

Year	Average Hourly Earnings. All Wage-Earners	Index of Average Hourly Earnings (1924=100)
	$	
1919	.699	93.5
1920	—	—
1921	—	—
1922	.811	108.5
1923	—	—
1924	.748	100.0
1925	—	—
1926	.719	96.2
1927	—	—
1928	—	—
1929	.618	82.7
1930	.577(*a*)	77.2

Source: United States Department of Labor, Bureau of Labor Statistics, *Special Bulletins*, and *Monthly Labor Review*, September, 1929.

(*a*) Estimated.

COST OF LIVING STATISTICS

THE tables here presented show the index numbers of the cost of living in the United States prepared by the three agencies, the U.S. Bureau of Labor Statistics, the National Industrial Conference Board, and the Massachusetts Commission on the Necessaries of Life.[1] In addition to the index numbers of the total cost of living (Table I.) the movement of the prices of the groups of commodities and services included in the total index numbers are shown (Table II.). Since there are differences in the content of the various index numbers, lists of the commodities and services included in each and the respective weights assigned to each commodity are given in separate tabulations (Tables III.–VII.). Matters of methods of computing index numbers, size and nature of sample, frequency of publication, method of enumeration, and type of price data collected are shown in as summary a form as is possible (Table VIII.).

Standards of living studies in the United States, for a large sample of the working population of the country, are far out of date and the tables here shown are taken from the survey of the U.S. Bureau of Labor Statistics in roughly the year 1918. No simple summary of the results of that investigation is practicable. The tables are limited to showing the amounts spent by the various income groups on different commodities and services (Tables IX. and X.), the nature and the amount of the expenditures on sundries (Table XI.), and the expenditures on housing of various types (Tables XII.–XIV.).

TABLE I.

INDEX NUMBERS OF THE TOTAL COST OF LIVING IN THE UNITED STATES, 1920–1930

Date	United States Bureau of Labor Statistics 1924=100	National Industrial Conference Board 1924=100	Massachusetts Commission on the Necessaries of Life 1924=100
December, 1920	116.2	110.5	114.1
December, 1921	101.0	97.3	99.0
December, 1922	98.3	95.7	97.7
December, 1923	100.4	99.3	100.1
December, 1924	100.0	100.0	100.0
December, 1925	103.1	103.2	104.2
December, 1926	101.8	101.4	100.7
December, 1927	99.7	98.5	99.6
December, 1928	99.3	97.5	99.3
December, 1929	99.4	97.5	99.6
December, 1930	93.2	88.9	93.0

[1] In P. H. Douglas *Real Wages in the United States*, 1890–1926, an elaborate study of the available cost of living material is made and a reconstructed index calculated.

TABLE II.

INDEX NUMBERS OF CHANGES IN RETAIL PRICES OF COMMODITIES AND SERVICES, 1920–1930

(1924=100)

	Food (*a*)		Clothing			Housing			Fuel and Light			Sundries		
Dec.	U.S.B. L.S.	M.C.N.L.	U.S.B. L.S.	N.I.C.B.	M.C.N.L.	U.S.B. L.S.	N.I.C.B.	M.C.N.L.	U.S.B. L.S.	N.I.C.B.	M.C.N.L.	U.S.B. L.S. (*b*)	N.I.C.B.	M.C.N.L.
1920	117.5	125.6	150.9	118.5	124.7	89.8	90.2	88.2	108.0	118.4	105.7	109.1	109.7	111.5
1921	98.9	97.5	107.6	90.7	102.7	96.0	91.9	93.6	100.3	105.9	100.5	102.2	101.7	103.4
1922	96.8	97.8	100.1	90.2	99.0	96.3	90.8	94.5	103.3	110.7	102.9	98.8	97.7	98.0
1923	99.2	100.8	102.9	101.2	102.7	99.0	97.8	97.4	101.9	104.2	101.2	100.6	99.4	99.0
1924	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1925	109.2	108.8	98.9	102.3	103.0	99.3	96.2	98.8	103.5	98.2	109.9	100.5	100.6	100.0
1926	106.8	103.4	97.3	100.6	98.0	97.6	94.0	97.7	104.3	100.0	103.3	100.0	99.4	99.5
1927	102.9	101.4	95.1	98.8	95.4	95.2	90.2	95.9	101.5	96.5	101.0	100.2	98.9	99.0
1928	102.8	103.2	94.5	98.3	95.4	92.7	87.0	94.8	100.4	96.5	100.0	100.6	97.7	98.7
1929	104.3	104.1	93.7	97.7	96.0	90.3	86.4	94.8	99.0	95.9	99.8	100.2	96.6	98.3
1930	90.6	91.5	89.3	85.0	90.5	87.1	81.5	93.3	97.0	94.1	97.7	99.1	93.7	95.8

NOTES:

U.S.B.L.S.—United States Bureau of Labor Statistics.
N.I.C.B. —National Industrial Conference Board.
M.C.N.L. —Massachusetts Commission on the Necessaries of Life.

(*a*) The National Industrial Conference Board uses the United States Bureau's monthly index of retail food prices.

(*b*) The United States Bureau publishes a separate index for furniture and furnishings. In the above table, this series is assigned its proportionate weighting and combined with the miscellaneous group to form a series of numbers comparable to those published by the National Industrial Conference Board and the Massachusetts Commission.

TABLE III.
LIST OF FOODS INCLUDED IN SPECIFIED INDEX NUMBERS(*a*)

United States Bureau of Labor Statistics (*b*)			Massachusetts Commission on the Necessaries of Life (*c*)	
Article	*Unit*	*Weights (d)*	*Article*	*Weights (e)*
Sirloin Steak	Pound	32	Fresh beef (sirloin and rump steak (*f*)	1605
Round Steak	Pound	32	Chuck and round roast	
Rib Roast	Pound	31	Salt beef (fancy brisket)	242
Chuck Roast	Pound	31	Fresh hog products (fresh pork loins)	379
Plate Beef	Pound	23	Salt hog products (whole ham, and bacon, salt pork)	361
Pork Chops	Pound	36	Other meat (lamb hind quarter, veal steak)	363
Bacon	Pound	17	Poultry (western fowl)	301
Ham	Pound	22	Fish (salt cod, scrap, fresh haddock)	298
Leg of Lamb	Pound	8	Eggs (fresh western)	545
Hens	Pound	23	Milk (fresh)	718
Salmon (canned)	Pound	9	Butter	881
Milk (fresh)	Quart	337	Cheese (American)	75
Milk (evaporated)	Pound can	77	Lard (leaf)	241
Butter	Pound	66	Tea (medium grade)	187
Oleomargarine	Pound	16	Coffee (mocha and Java)	287
Nut Margarine	Pound	6	Sugar (granulated)	493
Cheese	Pound	12	Molasses	45
Crisco	Pound	9	Flour and meal	480
Lard	Pound	34	(Wheat flour ½, barrel-bag weighted 2, cornmeal per pound weighted 1)	
Eggs (Strictly fresh)	Dozen	61	Bread (1½-lb. loaf)	456
Bread	Pound	531	Rice	57
Flour	Pound	264	Potatoes (white)	407
Cornmeal	Pound	54	Other vegetables (onions)	476
Rolled oats	Pound	41	(Canned tomatoes No. 3 can, canned corn and canned peas, No. 2 can)	
Cornflakes	Pound	7	Fruit (evaporated apples and prunes)	453
Cream of wheat	Pound	7	Vinegar	120
Macaroni	Pound	23	Other foods	530
Rice	Pound	35	(dried beans, weighted 2, oatmeal weighted 1)	
Beans (navy)	Pound	22		
Potatoes	Pound	704		
Onions	Pound	66		
Cabbage	Pound	65		
Beans (baked)	Pound	7		
Corn (canned)	Pound	10		
Peas (canned)	Pound	10		
Tomatoes (canned)	Pound	16		
Sugar	Pound	147		
Tea	Pound	8		
Coffee	Pound	40		
Prunes	Pound	11		
Raisins	Pound	9		
Bananas	Dozen (*g*)	11		
Oranges	Dozen	7		

NOTES:

(*a*) The National Industrial Conference Board uses the monthly food index of the U.S. Bureau of Labor Statistics.

(*b*) Taken from the U.S. Bureau of Labor Statistics, *Monthly Labor Review*, Vol. XII., No. 13, March, 1921, p. 26.

(*c*) List of foods and weights included in the index are taken from the Eighteenth Annual Report of the Commissions of Labor, 1904, p. 650. Items in parenthesis are taken from questionnaire sent to retail dealers, National Industrial Conference Board's report on *Cost of Living in the U.S.*, 1914–1926, p. 92.

(*d*) The weights represent the numbers of specified units of each enumerated article consumed by the average family in one year.

(*e*) The weights represent the relative amount spent on specified items when the total average family expenditure on food in one year is taken as 10,000.

(*f*) When not otherwise stated the items in parenthesis are assigned equal weights in their group.

(*g*) In cities where bananas are usually sold by the pound, the weight has been multiplied by three and applied to the price per pound.

TABLE IV.

LIST OF CLOTHING ITEMS INCLUDED IN SPECIFIED INDEX NUMBERS

United States Bureau of Labor Statistics (*a*)		National Industrial Conference Board (*b*)		Massachusetts Commission on the Necessaries of Life (*c*)	
Article	*Weight* (*d*)	*Article*	*Weight* (*e*)	Article	Weight (*f*)
Women's Clothing		*Women's Clothing*		*Women's Clothing*	
Suits, wool	½	Coat or suit	25.8	Top coats, Suits, Street Dresses	27
Coats, wool	⅓	Wool dress	8.6	Underwear	5
Dresses, wool	½	Wool skirt	3.4	Waists, Kimonos, House dresses, Aprons, Nightgowns, Undershirts	18
Dresses, silk (yds.)	4	2 cotton skirts	3.4	Shoes	12
Dresses, voile (yds.)	4	4 waists	6.9	Gloves	3
Dresses, organdie (yds.)	10	2 house dresses	3.4	Hosiery	2
Dresses, gingham (yds.)	10	Aprons	1.6	Corsets	4
Waists, silk	½	Shoes	11.4	Hats	9
House dresses	2	Hosiery	2.6		80
Kimonos	½	Corsets	3.4		
Apron, gingham (yds.)	2	3 union suits	1.7		
Petticoat or slip, summer	1	3 union suits	3.9		
Petticoat or slip, winter	1	Muslin underwear	5.5		
Envelope chemise	2	3 petticoats	3.0		
Corset covers	2	3 nightgowns	4.1		
Brassieres	2	1 straw hat	1.7		
Corsets	2	1 velvet hat	1.7		
Nightgown	2	Gloves	2.6		
Union suit, summer	2	Sundries	5.3		
Union suit, winter	1		100		
Stockings, cotton	4				
Stockings, silk	4				
Shoes, low	2				
Rubbers	1				
Half soles and heels	1				
Rubber heels	3				
Men's Clothing		*Men's Clothing*		*Men's Clothing*	
Overcoat	¼	Suits	25.6	Overcoats, Suits, Trousers	39
Suits, winter	¼	Overcoats	17.0	Shoes	15
Suits, light weight	¼	Heavy trousers	5.9	Hats	4
Suits, mohair	¼	2 shirts	3.4	Gloves	6
Overalls	2	1 work shirt	1.3	Socks	4
Shirts, cotton	6	2 work shirts	1.7	Shirts	6
Hat, felt	1	3 pair overalls	3.8	Collars	2
Hat, straw	1	Shoes	15.3	Underwear	6
Cap	1	8 pair hose	2.0	Night garments	2
Union suit, athletic	3	3 sets underwear	2.6		84
Union suit, winter	1	2 sets underwear	3.4		
Union suit, light weight	1	2 night shirts	2.6		
Pajama	2	Collars and ties	2.6		
Socks, cotton	12	Hats and caps	5.9		
Collars	6	Gloves	2.6		
Neckties	2	Sundries	4.3		
Shoes, low	1		100		
Shoes, high	1½				
Rubbers	½				
Whole soles and heels	1				
Half soles and heels	1				

TABLE IV. (*continued*)

LIST OF CLOTHING ITEMS INCLUDED IN SPECIFIED INDEX NUMBERS (*continued*)

United States Bureau of Labor Statistics (*a*)		National Industrial Conference Board (*b*)		Massachusetts Commission on the Necessaries of Life (*c*)	
Article	Weight (*d*)	Article	Weight (*e*)	Article	Weight (*f*)
Children's Clothing—6-year-old girl		*Children's Clothing* No article of children's clothing listed.		*Children's Clothing* No articles of children's clothing listed.	
Wool coat	½				
Serge for dress (1 yd.)	¾				
Gingham for dress (6 yds.)	18				
Gingham for apron (1 yd.)	2½				
Petticoat or bloomers, winter	1				
Petticoat or princess slip summer	2				
Drawers or bloomers, summer	5				
Nightgowns, summer	1				
Nightgowns, winter	1				
Underwaists, summer	2				
Underwaists, winter	2				
Vests, summer	3				
Union suits, winter	2				
Shoes, low	3				
Shoes, high	2				
Stockings, cotton	12				
Rubbers	1				
Children's Clothing—Boy of 12					
Overcoat or mackinaw	½				
Suit, wool	1				
Trousers, cotton	2				
Trousers, wool	1				
Shirt or blouse, cotton	5				
Union suit, summer	3				
Union suit, winter	2				
Pajamas	2				
Cap	2				
Neckties	2				
Stockings, cotton	12				
Shoes, high	5				
Half soles and heels	5				

(*a*) From Elmer Carr, *Cost of Living Statistics of the U.S. Bureau of Labor Statistics and the National Industrial Conference Board*, Journal of the American Statistical Association, December, 1924, p. 489.

(*b*) From National Industrial Conference Board, *The Cost of Living in the United States*, 1914–1926, p. 36.

(*c*) From National Industrial Conference Board, *The Cost of Living in the United States*, 1914–1926, p. 94.

(*d*) The Bureau uses average yearly consumption weights.

(*e*) The Conference Board's weights represent the relative amount spent on specified items of clothing when the total expenditure on men's and women's clothing is taken as 200.

(*f*) The Massachusetts Commission's weights represent the relative amount spent on specified items of clothing when the total expenditure on men's and women's clothing is taken as 164.

TABLE V.
TYPES OF LIVING ACCOMMODATIONS INCLUDED IN SPECIFIED INDEX NUMBERS FOR COST OF HOUSING

United States Bureau of Labor Statistics	National Industrial Conference Board	Massachusetts Commission on the Necessaries of Life
Houses and apartments "such as are occupied by representative working men's families." (*a*) Prices obtained on from 375 to 2,000 houses and apartments in each city. An attempt is made to continue pricing the identical houses and apartments.	"Houses or unheated apartments of 4 or 5 rooms and bath such as are usually occupied by wage-earners." (*b*) Between 1 and 4 general estimates of change in rents obtained in each city from individuals and organizations in touch with housing situation.	"One, two and three family houses and middle-priced apartments, heated and unheated." (*c*) Price information obtained through administrative function of the commission and from periodic surveys and estimates.

NOTES:

(*a*) United States Bureau of Labor Statistics Bulletin, No. 326, p. 15.
(*b*) National Industrial Conference Board's Report—*The Cost of Living in the United States*, 1914–1927, p. 53.
(*c*) *Report of the Special Commission on the Necessaries of Life*, Mass., January, 1923, House Number 1250, p. 248.

TABLE VI.
ITEMS INCLUDED IN SPECIFIED INDEX NUMBERS OF THE RETAIL COST OF FUEL AND LIGHT

United States Bureau of Labor Statistics (*a*)	National Industrial Conference Board (*b*)	Massachusetts Commission on the Necessaries of Life (*c*)
Coal-price on ton lots. Anthracite-type most generally used in each locality. Bituminous-coal for domestic purposes. Gas-Natural and manufactures price per 1,000 cubic feet based on first 1,000 cubic feet. Electricity rate per kilowatt hour. Wood-price per cord for cordwood. Kerosene. Articles *weighted* by average consumption of each item in individual cities.	Coal-price on ton lots. Anthracite, stove and chestnut. Bituminous coal used for domestic purposes. Gas-net rate per 1,000 cubic feet of gas for first 2,000 feet. Electricity rate per first 20 kilowatt hours. *Weighting* Coal index simple average of anthracite (in which stove and chestnut have been equally weighted) and bituminous. Gas and Electricity. Gas weighted .. .. 2 Electricity weighted .. 1 Combined fuel and light index. Coal weighted .. 3.7 Gas and electricity .. 1.9	Coal—domestic sized anthracite. Kerosene. Gas. Electricity. *Weighting* Coal weighted .. 10 Kerosene weighted .. 1 Gas weighted .. .. 2 Electricity weighted .. 2

NOTES:

(*a*) Taken from National Industrial Conference Board—*The Cost of Living in the United States* 1914–1926, p. 74.
(*b*) *Ibid*, pp. 48–51.
(*c*) *Ibid*, pp. 94–95

TABLE VII.

LIST OF SUNDRY ITEMS INCLUDED IN SPECIFIED INDEX NUMBERS

United States Bureau of Labor Statistics (*a*)		National Industrial Conference Board (*a*)		Massachusetts Commission on the Necessaries of Life (*b*)	
Article	Weight (*c*)	Article	Weight (*d*)	Article	Weight (*e*)
Street car, adult fare	550	Car fare—average ride within city	5.88	(Price and articles priced taken from N.I.C.B. with the addition of ice).	
Movies, first floor, weekday night	70	Medical: Office and house visits of Doctor	8.24	Ice	15
Newspaper		Standard household remedies	3.53	Car fare	15
Daily on street	313	Toilet preparations		Entertainment	25
Sunday, on street	52	Reading material: 25 weekly and monthly mags.	14.12	Medicine	25
Doctor		Recreation: Seat in a motion picture theatre	10.59	Insurance	50
Office visit	7	Insurance	11.76	Church	30
House visit	7	Furniture		Tobacco, etc.	20
Obstetrical care	0.1	Furnishing and supplies	14.12	Reading	10
Medicine		Household draperies		House furnishing	45
Calomel ¼ grain doz.	4	Household supplies		Organizations	25
Aspirin 5 grain doz.	4	Brooms and brushes			260
Castor oil oz.	8	China and crockery			
Quinine pills oz.	4	Glassware			
Standard prescription 2 oz.	3	Kitchen utensils			
Standard prescription 4 oz.	3	Carpets and rugs			
Standard prescription capsule or pill 3 grain 1 doz.	8	("fair grade of merchandise at moderate cost")			
Hospital		Church	11.76		
Payward 1 week	0.2	Charity			
Dentist		Gifts			
Filling	.4	Organization dues	8.24		
Crown	0.5	Labor organization dues, lodges and other organizations of social nature			
Plate, full upper	0.05	Candy, ice cream	2.35		
Spectacles		Boxed goods			
Gold filled rims	0.3	"Penny" candy			
Separate lens	0.5	Tobacco	9.41		
Laundry		Cigarettes			
Men's collars	104	Tobacco			
Men's shirts, soft cuffs	52	Cheap cigars			
Sheets	104		100		
Turkish towels	104				
or					
Flat work pounds	208				
Cleaning supplies					
Soap, small cakes	30				
Soap, laundry (6–12 oz. cakes)	60				
Soap powder (8–16 oz. pkgs.)	12				
Cleaning powder (14–18 oz. pkgs.)	24				

TABLE VII. (*continued*)

LIST OF SUNDRY ITEMS INCLUDED IN SPECIFIED INDEX NUMBERS (*continued*)

United States Bureau of Labor Statistics (*a*)		National Industrial Conference Board (*a*)		Massachusetts Commission on the Necessaries of Life (*b*)	
Article	Weight (*c*)	Article	Weight (*d*)	Article	Weight (*e*)
Barber					
Shave	25				
Hair cut	10				
Toilet Articles and preparations					
Tooth brush	3				
Toilet soap and cakes	30				
Shaving stick or cream	2				
Toothpaste or powder	6				
Talcum powder, cans	8				
Vaseline (1–2 oz. jar)	1				
Telephone, Residence	½				
Tobacco Cigars	110				
Cigarettes, pkgs.	60				
Cigarettes, tobacco 1–2 oz. pkgs.	30				
Pipe, tobacco 1–2 oz. pkgs.	20				
Plug tobacco 1–3½ oz. Cut	20				
Furniture and Furnishings (The Bureau publishes a separate index for this group)		*Continued from previous column—*			
Carpets and rugs, wool yds.	3.9	Couches	.1		
Matting rugs, grass sq. yds.	.5	Sanitary or bed	.1		
Linoleum, sq. yds.	1.8	Dressers	.1		
Chairs, living room	.8	Chiffoniers	.1		
Chairs, dining room	.8	Buffets	.1		
Tables, library	.2	Bedsteads	.2		
Tables, dining	.2	Bed Springs	.2		
Tables, kitchen	.2	Mattresses	.3		
		Baby carriages	.2		
		Pillow cases	.9		
		Sheets	.3		
		Table cloths	.3		
		Towels	2.8		
		Blankets, cotton	.5		
		Blankets, wool	.5		
		Comforters	.2		
		Cooking stoves	.3		
		Heating stoves	.3		
		Brooms	3.0		
		Sewing machines	.1		
		Refrigerators	.1		

NOTES:

(*a*) From Elma Carr, *Cost of Living Statistics of the U.S. Bureau of Labor Statistics and the National Industrial Conference Board*, Journal of the American Statistical Association, December 1924, p. 492.

(*b*) From National Industrial Conference Board—*The Cost of Living in the United States* 1914–1926, p. 95.

(*c*) The weights represent the number of specified units of each enumerated article consumed by the average family in one year.

(*d*) The weights represent the relative amount spent on specified items when the total average family expenditure on sundries in one year is taken as 100.

(*e*) The weights represent the relative amount spent on specified items when the total average family expenditure on sundries is taken as 260.

TABLE VIII.

DESCRIPTION OF VARIOUS ASPECTS OF SPECIFIED COST OF LIVING INDEX NUMBERS

United States Bureau of Labor Statistics	National Industrial Conference Board	Massachusetts Commission on the Necessaries of Life
Technical The average price of all quotations on each article is multiplied by its consumption weight. The aggregate of the products of all the items in each major group, such as food, clothing, etc., is compared to the corresponding figure for the last preceding date on which indexes were computed. The percentage difference between these two figures is linked to the last preceding index number to give the current number. In the same way the index number for the country as a whole is computed from the simple average of the aggregates for each city. The index number for each major group is then weighted for its relative importance in the total cost of living.	*Method of Computing* A simple mathematical average is made of all quotations for each of the items enumerated in each major group, such as food, clothing, etc. The percentage change in cost of each article from the last preceding date of computation is calculated. These percentage changes are linked to the last preceding index number. The current index numbers are multiplied by their respective expenditure weights and the sum of the products are divided by the sum of the weights. The index number for each major group is then weighted for its relative importance in the total cost of living. The Conference Board uses the U.S. Bureau index for food.	*Index Numbers* The average price of all quotations on each article is divided by the price of the same article in 1913. The resultant percentages are multiplied by their respective expenditure weights and the sum of the products are divided by the sum of the weights to give the current index number for each of the major groups, such as food, clothing, etc. The index number for each major group is then weighted for its relative importance in the total cost of living.
Frequency The cost of living index numbers for individual cities and the country as a whole are published semi-annually in December and June. A monthly index of retail food costs is computed by the Bureau. Monthly information on the retail price of coal, wood, gas and dry goods are also obtained.	*of* The cost of living index numbers of the country as a whole are published monthly.	*Computation* The cost of living index numbers for the State of Massachusetts are published monthly.
Base *Average for the year* 1913 = 100	*July*, 1914 = 100	*Period* *Average for the year* 1913 = 100
The weights used by the Bureau were determined from their budget study in 1917–19 of 12,096 white	*Weights* The weights are substantially those determined by the U.S. Bureau of Labor Statistics in their budget study in 1901 to	The Massachusetts Commission use the same weights as those used by the National Industrial Conference Board.

TABLE VIII. (*continued*)

DESCRIPTION OF VARIOUS ASPECTS OF SPECIFIED COST OF LIVING INDEX NUMBERS (*continued*)

United States Bureau of Labor Statistics	National Industrial Conference Board	Massachusetts Commission on the Necessaries of Life
families in 92 cities in the United States. They are: Food .. .. 38.2 Clothing .. 16.6 Rent .. .. 13.4 Fuel and Light 5.3 Miscellaneous 21.3 Furniture and Furnishings 5.1 } 26.4	1903 of 11,156 families, although later pre-war budget studies had a slight influence on the allocation of weights. They are: Food .. .. .. 43.1 Clothing .. .. 13.2 Rent .. .. .. 17.7 Fuel and Light .. 5.6 Miscellaneous .. 20.4	
	Area Covered	
Food cost in .. 51 cities Clothing cost in.. 32 cities Rent cost in .. 32 cities Fuel and Light .. 32 cities Miscellaneous .. 32 cities (Prices of coal and gas are collected in 51 cities and published separately for the cities but the National index number is computed from cost in 32 cities).	Food (Bureau's figures)51 cities Clothing about .. 79 cities Rent about .. ..170 cities Fuel and Light Coal about .. 59 cities Gas and Electric145 cities Miscellaneous— Direct and indirect representation of country as a whole. (The number of cities represented vary from month to month).	Food .. .. .. 27 cities Clothing .. .. 27 cities Rent Many houses in many parts of the Commonwealth. Fuel and Light Coal and Kerosene—selling price throughout the State. Gas and Electricity—price in seven large cities. Miscellaneous Conference Board's figures used and studies of individual sundry items made from time to time. Price of ice calculated from general estimate of the prices in the State.
Method	*of Obtaining*	*Information*
Food-Questionnaire Mailed to between 15 and 25 retail dealers in each city. (Number proportional to population). *Clothing—Special Agent* Visiting 4 or 5 large stores in each city. *Rent—Special Agent* Securing price quotations on 375 to 2,000 houses in each city (number	*Clothing—Questionnaire* Mailed to between 1 and 10 stores in each city (number not proportional to population). Standard of goods indicated by 1914 price and last quotation of each store reporting prices. *Rent—Questionnaire* Stating approximate average rental of specified type of dwelling from	*Food — Questionnaire and Special Agent* To chain and service stores furnishing about 100 quotations on each item. (Distribution roughly proportional to population). *Clothing—Questionnaire and Special Agent* (Mostly Special Agent) furnishing about 100 quotations on each item.

TABLE VIII. (*continued*)
DESCRIPTION OF VARIOUS ASPECTS OF SPECIFIED COST OF LIVING INDEX NUMBERS (*continued*)

United States Bureau of Labor Statistics	National Industrial Conference Board	Massachusetts Commission on the Necessaries of Life
Method	*of obtaining Information*	
proportional to population) from real-estate dealers. *Fuel and Light—Questionnaire* Mailed to between 10 and 15 firms in each city. (Prices of kerosene from grocery questionnaire). *Miscellaneous and Furniture and Furnishings — Special Agent* Securing quotations from 4 or 5 stores in each city.	about 500 organizations or individuals throughout the country in touch with the housing situation. Previous quotation stated on questionnaire. *Fuel and Light—Questionnaire* Coal—about 160 coal dealers. Gas and Electricity—reports from Mayors, public service commissions, and private utilities. *Miscellaneous* (*a*) *Special Agent* visiting 1 or more firms in touch with the national prices of car fare, drugs, reading material, candy and tobacco. (*b*) *Questionnaire* to firms in various cities supply prices of furnishing and furniture (general estimate), recreation, candy and reading material. (*c*) No additional information obtained since 1922 on other miscellaneous items.	Last month's quotation stated for comparison. *Rent* (*a*) Investigation and adjustment of thousands of housing cases. (*b*) Special Agents investigating rentals. (*c*) Occasional special surveys in principal cities. *Fuel and Light—Questionnaire* Coal—211 quotations. Gas and Electricity—quotations from the Department of Public Utilities. Kerosene from the grocery questionnaire. *Miscellaneous* National Industrial Conference Board's prices used. Cost of ice calculated from general estimate of condition in the State.
	Type of Price Data Collected	
Only *retail* prices of the grade of goods used by wage earners and low and medium salaried workers.	Only *retail* prices of the grade of goods used by wage earners and low and medium salaried workers.	Only *retail* prices of the grade of goods used by wage earners and low and medium salaried workers.

SOURCES OF INFORMATION:

United States Bureau of Labor Statistics:—
Numerous Bulletins and Editions of the *Monthly Labor Review* of the U.S. Bureau of Labor Statistics.
(Copies of Questionnaires sent to retail dealers in Bulletin Number 326, pp. 16–25).

National Industrial Conference Board:—
National Industrial Conference Board—*Cost of Living in the United States*, 1914 to 1927.

Massachusetts Commission on the Necessaries of Life:—
Report of the Special Commission on the Necessaries of Life, January, 1929, Boston-House Number 1074, Appendix A.

Comparison of the three index numbers:—
National Industrial Conference Board—*Cost of Living in the United States*, 1914–1926

TABLE IX.

AMOUNT OF TOTAL AVERAGE EXPENDITURE IN ONE YEAR (1917–1919) FOR THE PRINCIPAL GROUPS OF ITEMS OF THE COST OF LIVING OF 12,096 FAMILIES IN 92 INDUSTRIAL CENTERS, BY INCOME GROUPS

Income Groups	Average Number of People in Family	Average Yearly Expenses per Family for:					Total Average Yearly Expenditure per Family	Average Surplus (+) or Deficit (—)
		Food	Clothing	Rent	Fuel and Light	Miscellaneous (*a*)		
		$	$	$	$	$	$	$
Under $900 ..	4.3	371.61	111.63	121.65 (*b*)	57.19 (*b*)	180.12	842.91	— 30.02
$900 and under $1200 ..	4.5	456.16	156.45	149.63 (*c*)	64.15 (*c*)	248.91	1076.12	— 0.70
$1200 and under $1500 ..	4.7	515.56	206.50	179.73 (*d*)	73.33 (*d*)	324.35	1300.71	+ 43.08
$1500 and under $1800 ..	5.0	571.75	257.38	207.13 (*e*)	79.36 (*e*)	419.59	1536.68	+ 94.86
$1800 and under $2100 ..	5.1	626.52	306.94	231.92 (*f*)	87.27 (*f*)	501.47	1755.74	+169.13
$2100 and under $2500 ..	5.7	711.86	384.20	248.35 (*g*)	92.97 (*g*)	616.82	2054.97	+217.21
$2500 and over	6.4	859.98	503.03	260.21 (*h*)	102.03 (*h*)	741.29	2466.91	+323.34
All Incomes ..	4.9	548.51	237.60	186.55 (*i*)	74.28 (*i*)	379.33	1434.37	+78.93

Source: U.S Bureau of Labor Statistics *Bulletin No.* 357, May, 1924, p. 15.

(*a*) The Bureau publishes separate figures for furniture and furnishings. In this table they have been combined with miscellaneous expenditures.
(*b*) Not including one family in which rent is combined with fuel and light.
(*c*) Not including 43 families in which rent is combined with fuel and light.
(*d*) Not including 91 families in which rent is combined with fuel and light.
(*e*) Not including 80 families in which rent is combined with fuel and light.
(*f*) Not including 56 families in which rent is combined with fuel and light.
(*g*) Not including 21 families in which rent is combined with fuel and light.
(*h*) Not including 9 families in which rent is combined with fuel and light.
(*i*) Not including 301 families in which rent is combined with fuel and light.

TABLE X.

PER CENT. OF TOTAL AVERAGE EXPENDITURE IN ONE YEAR (1917–1919) FOR THE PRINCIPAL GROUPS OF ITEMS OF THE COST OF LIVING OF 12,096 FAMILIES IN 92 INDUSTRIAL CENTERS, BY INCOME GROUPS

Income Groups	Average Number of People in Family	Average Yearly Expenses per family for:					Total
		Food	Clothing	Rent	Fuel and Light	Miscellaneous (*a*)	
		%	%	%	%	%	%
Under $900	4.3	44.1	13.2	14.5 (*b*)	6.8 (*b*)	21.4	100
$ 900 and under $1200	4.5	42.4	14.5	13.9 (*c*)	6.0 (*c*)	23.1	100
$1200 and under $1500	4.7	39.6	15.9	13.8 (*d*)	5.6 (*d*)	25.0	100
$1500 and under $1800	5.0	37.2	16.7	13.5 (*e*)	5.2 (*e*)	27.3	100
$1800 and under $2100	5.1	35.7	17.5	13.2 (*f*)	5.0 (*f*)	28.5	100
$2100 and under $2500	5.7	34.6	18.7	12.1 (*g*)	4.5 (*g*)	30.0	100
$2500 and over ..	6.4	34.9	20.4	10.6 (*h*)	4.1 (*h*)	30.1	100
All Incomes	4.9	38.2	16.6	13.0 (*i*)	5.2 (*i*)	26.4	100

Source: U.S. Bureau of Labor Statistics *Bulletin No.* 357, May, 1924, p. 5.

(*a*) The Bureau publishes separate figures for furniture and furnishings. In this table they have been combined with miscellaneous expenditures.
(*b*) Not including one family in which rent is combined with fuel and light.
(*c*) Not including 43 families in which rent is combined with fuel and light.
(*d*) Not including 91 families in which rent is combined with fuel and light.
(*e*) Not including 80 families in which rent is combined with fuel and light.
(*f*) Not including 56 families in which rent is combined with fuel and light.
(*g*) Not including 21 families in which rent is combined with fuel and light.
(*h*) Not including 9 families in which rent is combined with fuel and light.
(*i*) Not including 301 families in which rent is combined with fuel and light.

TABLE XI.

AVERAGE FAMILY EXPENDITURE FOR MISCELLANEOUS ITEMS IN ONE YEAR (1917–1919) IN THE UNITED STATES, BY INCOME GROUPS

	Families Having An Annual Expenditure Of:							
	Under $900	$900 and under $1200	$1200 and under $1500	$1500 and under $1800	$1800 and under $2100	$2100 and under $2500	$2500 and over	All Incomes
	$	$	$	$	$	$	$	$
Disability and sickness (*f*) ..	34.10	43.34	55.56	67.85	73.75	81.77	95.56	60.39
Insurance (*a*) ..	26.58	32.40	39.64	46.37	53.21	62.35	67.63	43.28
Contributions, dues gifts, etc. (*b*) ..	13.86	20.04	29.56	38.69	48.58	60.31	76.30	34.95
Streetcar fares (*c*) ..	9.91	16.68	21.14	26.45	29.36	38.44	47.36	23.99
Amusements and vacations, etc. (*d*)	4.12	8.33	13.68	20.97	29.23	38.63	61.84	18.90
Education and uplift (*e*)	10.32	10.67	14.93	19.25	24.23	31.74	38.56	17.82
Tobacco	11.61	13.80	15.02	17.38	19.62	21.41	27.53	16.56
Automobiles and bycycles and motorcycles ..	0.66	4.14	8.55	17.65	31.27	49.64	57.98	16.33
Laundry sent out	4.63	6.64	10.17	14.38	18.69	22.02	23.75	12.47
Cleaning supplies ..	9.45	11.19	11.85	12.47	12.92	13.80	15.06	12.14
Barber	4.81	6.09	6.87	8.00	9.17	10.11	13.01	7.58
Liquor	4.41	6.55	6.73	7.37	6.65	9.21	15.82	7.18
Toilet articles and preparations ..	3.90	4.90	5.93	6.74	8.00	8.82	10.66	6.43
Telephones ..	1.25	1.78	3.73	5.45	7.40	9.15	9.59	4.63
Servant and day wages	.69	1.32	2.60	4.77	7.47	10.11	7.70	4.01
Postage	1.09	1.49	1.98	2.38	2.92	3.46	4.89	2.24
Tools	.64	1.20	1.85	2.80	2.92	3.21	2.75	2.15
Travel	1.35	1.02	1.54	2.07	3.08	4.59	6.92	2.09
Undertaker ..	.99	1.43	1.49	2.13	1.38	3.85	5.75	1.86
Moving	1.28	1.83	1.73	1.83	1.93	2.10	1.87	1.81
Personal property and poll tax ..	1.11	1.08	1.15	1.41	1.81	1.93	2.92	1.38
Insurance: Personal property.. ..	.27	.36	.66	.90	1.26	1.27	1.64	.79
Cemetery	.28	.31	.32	.41	.31	.89	.86	.38
Other miscellaneous expenditures	2.51	4.48	5.70	7.54	9.12	11.27	12.28	6.75
Total ..	149.81	201.06	262.40	335.28	404.27	500.08	608.23	306.11

Source: U.S. Bureau of Labor Statistics, *Bulletin No.* 357, pp. 447–455.

NOTES:

(*a*) Life; accident and health; life, other members of family.

(*b*) Contributions to church; labor organizations; lodges, clubs, societies, etc.; gifts to charity; patriotic purposes.

(*c*) Car fare to work; to school; other.

(*d*) Movies; amusements, vacations, etc.; other amusements; excursions; vacations.

(*e*) Newspapers; magazines; books; schools, tuition, books, music.

(*f*) Medicine; nurse; hospital; dentist; eyeglasses; other sickness.

TABLE XII.

PER CENT. OF TOTAL NUMBER OF FAMILIES LIVING IN HOUSES OR APARTMENTS, HAVING SPECIFIED NUMBER OF ROOMS, BY INCOME GROUPS

Income Group	Number of Families	Average No. of *Persons* per Family	Average No. of *Rooms* per Family	Per Cent. of Total Number of Families Living in Residences Having:				
				Less than 4 rooms	4 rooms	5 rooms	6 rooms	More than 6 rooms
Houses				%	%	%	%	%
Under $900.. ..	169	4.3	4.2	30.77	30.77	22.49	13.61	2.37
$ 900—$1200 ..	1078	4.6	4.6	17.53	34.04	26.99	15.86	5.57
$1200—$1500 ..	1713	4.8	5.0	9.63	27.50	32.57	20.14	10.16
$1500—$1800 ..	1151	5.1	5.1	7.21	23.46	35.19	23.11	11.47
$1800—$2100 ..	658	5.3	5.4	2.74	20.67	36.47	23.25	17.63
$2100—$2500 ..	292	5.9	5.6	5.48	13.70	28.08	28.77	23.97
Over $2500.. ..	129	6.2	5.9	2.33	11.63	24.81	34.11	27.13
All Incomes ..	5190	5.0	5.0	10.10	25.99	31.68	20.89	11.35
Apartments and Flats								
Under $900.. ..	118	4.2	3.7	44.92	33.05	16.95	3.39	1.69
$ 900—$1200 ..	851	4.4	4.1	32.08	36.31	25.62	8.23	1.29
$1200—$1500 ..	1187	4.5	4.4	20.22	32.10	32.10	12.89	2.70
$1500—$1800 ..	691	4.8	4.7	13.02	27.64	37.48	17.08	4.78
$1800—$2100 ..	315	5.0	4.9	7.62	28.25	37.78	21.59	4.76
$2100—$2500 ..	139	5.9	5.2	2.88	23.02	40.29	20.86	1.29
$2500 and over ..	69	6.8	6.0	—	7.25	30.43	30.43	31.88
All Incomes ..	3370	4.7	4.5	20.00	30.74	31.57	13.74	3.95

Source: U.S. Bureau of Labor Statistics, *Bulletin No.* 357, p. 333.

TABLE XIII.

PER CENT. OF TOTAL NUMBER OF FAMILIES HAVING SPECIFIED MODERN CONVENIENCES AND AVERAGE NUMBER OF ROOMS EQUIPPED FOR HEATING IN EACH DWELLING, BY INCOME GROUPS

Income Group	Per Cent. of Total Number of Families Having		Average Number of Rooms Equipped for Heating
	Bath Rooms	Inside Water Closets	
Houses	%	%	
Under $900	16	31	2.3
$ 900 and under $1200	32	47	2.5
$1200 and under $1500	50	61	2.8
$1500 and under $1800	60	69	3.0
$1800 and under $2100	70	77	3.3
$2100 and under $2500	72	79	3.5
$2500 and over	64	74	3.8
All Incomes	51	62	2.9
Apartments and Flats			
Under $900	29	64	1.9
$ 900 and under $1200	41	78	1.9
$1200 and under $1500	62	87	2.2
$1500 and under $1800	71	91	2.6
$1800 and under $2100	76	92	2.8
$2100 and under $2500	76	95	2.8
$2500 and over	78	94	3.1
All Incomes	60	86	2.3

Source: U.S. Bureau of Labor Statistics, *Bulletin No.* 357, pp. 273–333.

TABLE XIV.

AVERAGE RENT PAID FOR HOUSES OR APARTMENTS, BY INCOME GROUPS

Income Group	Average Rent Per Year		
	Per Residence	Per Room	Per Person
Houses	$	$	$
Under $900	113.00	26.63	26.02
$ 900 and under $1200	139.77	30.43	30.33
$1200 and under $1500	166.30	33.35	34.34
$1500 and under $1800	192.48	37.47	37.50
$1800 and under $2100	214.93	39.72	40.83
$2100 and under $2500	232.05	41.17	39.62
$2500 and over	233.85	39.49	37.85
All Incomes	176.41	35.08	35.38
Apartments and Flats			
Under $900	121.30	32.75	28.86
$ 900 and under $1200	148.58	36.32	33.81
$1200 and under $1500	176.13	39.69	38.72
$1500 and under $1800	196.72	41.60	41.28
$1800 and under $2100	212.13	43.56	42.48
$2100 and under $2500	226.33	43.27	38.65
$2500 and over	231.12	38.43	33.79
All Incomes	178.04	39.66	38.00

Source: U.S. Bureau of Labor Statistics, *Bulletin No.* 357.

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